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CORPORATE GOVERNANCE, CAPITAL INVESTMENTS, PROFITABILITY AND FIRM VALUE: A CASE STUDY OF THAILAND DURING THE COVID-19 PANDEMIC

Niyata Kawewong[1], Pitima Diskulnetivitya[2,*], Kemakorn Chaiprasit[3], and Piman Limpaphayom[4]

Abstract

This study investigates the moderating effect of corporate governance on the negative impact of the COVID-19 pandemic on profitability and firm valuation in Thailand. Similar to previous studies, it is documented that COVID-19 negatively affects both firm profitability and firm value. The results, based on ordinary least squares (OLS) regression analysis, show that capital investments were able to mitigate the adverse effects of the COVID-19 pandemic on firm profitability. In contrast, capital investments worsen the negative impact of COVID-19 on firm value, as measured by Tobin's *q*. For companies with good quality of corporate governance practices, however, capital investments show a positive relationship with firm value during the pandemic. These results highlight the benefits of good corporate governance during an economic crisis in an emerging market.

Keywords: Corporate governance; COVID-19; Firm value; Thailand

1. INTRODUCTION

In December 2019, the initial cases of COVID-19 infection among humans were identified in Wuhan, China. The disease consequently spread to other parts of the world at a rapid rate. By January 2020, the growth of the outbreak prompted the World Health Organization to issue a public health emergency warning, and in March 2020, COVID-19 was declared a pandemic. Although the exact sources of the virus and the inception of the pandemic remain unclear, the impact of COVID-19 on the global economy is indisputable. In fact, the COVID-19 global pandemic is widely recognized as a profound macroeconomic shock that negatively impacted firms and industries across all economies, surpassing the magnitude of the 2008 global financial crisis.

This paper contributes to the literature by integrating two streams of research on the relationship between corporate governance and firm performance in Asia and the impact of COVID-19 on firm performance in Asia. First, the study focuses on Tobin's *q* in addition to

[1] Asst. Prof. Dr. Niyata Kawewong is currently working as a lecturer in the Department of Management and Entrepreneurship, Chiang Mai University Business School, Chiang Mai University, Thailand. She obtained a Ph.D. from Kobe University, Japan.

[2,*] Asst. Prof. Dr. Pitima Diskulnetivitya (corresponding author) is currently working as a lecturer in the Department of Accounting, Chiang Mai University Business School, Chiang Mai University, Thailand. She obtained a D.B.A from Thammasat University, Thailand. Email: pitima.d@cmu.ac.th

[3] Asst. Prof. Dr. Kemakorn Chaiprasit is currently working as a lecturer in the Department of Management and Entrepreneurship, Chiang Mai University Business School, Chiang Mai University, Thailand. She obtained a Ph.D. from Chiang Mai University, Thailand.

4 Assoc. Prof. Dr. Piman Limpaphayom is currently working as a lecturer at Portland State University and the Sasin School of Management at Chulalongkorn University. He obtained a Ph.D. (Finance and Insurance) from the University of Rhode Island, USA.

firm profitability. While accounting-based measures capture actual operating performance as reported in financial statements, market-based measures (e.g., Tobin's q) capture both a firm's current performance and its future growth potential (Bharadwaj et al., 1999). Tobin's q also reflects valuable investment opportunities and has been widely employed as a dependent variable in previous studies which examine the effect of managerial decisions. A high Tobin's q indicates a firm's investment opportunities and strong growth prospects (Chung et al., 1998; Adam & Goyal, 2008). A number of studies document a positive relationship between the quality of corporate governance practices and firm value in Asian economies (Cheung et al., 2010; Connelly et al., 2012). Existing studies on COVID-19 and firm performance focus on firm profitability (Shen et al., 2020). It is therefore important to extend the investigation to understand the impact on long-term firm valuation.

Previous studies have also highlighted the impact of capital investments on firm profitability during COVID-19. Shen et al. (2020) showed that COVID-19 negatively affected firm profitability but that the negative impact was alleviated for companies which invested heavily during the period. Following Shen et al. (2020) and Cheung et al. (2010), this study focuses on the effect of capital investments in alleviating the negative impact of COVID-19 on firm value. More importantly, the focus of this study is on the moderating effect of the quality of corporate governance practices on the impact of the COVID-19 pandemic and the relationship between capital investments and firm performance during the pandemic, regarding both short-term (profitability) and long-term (firm value) effects.

From a sample of companies listed on the Stock Exchange of Thailand (SET), the results show that, similar to firms in China (Shen et al., 2020), capital investments help alleviate the negative impact of COVID-19 on firm profitability. However, the findings also reveal that capital investments during the pandemic adversely affect firm value. These results lead to the conclusion that the positive impact of capital investments during COVID-19 is short-lived and has negative long-term implications for the firm. Additionally, unlike earlier studies (Connelly et al., 2012), this study finds no significant relationship between the quality of corporate governance practices and firm value in the recent sample period. It is believed that an expansive adoption of the OECD Principles among companies listed on the Stock Exchange of Thailand dampens the benefits of corporate governance. Nevertheless, the results show that capital investments still have a positive impact on firm value for firms with high-quality corporate governance practices, but not for firms with low-quality governance. It is concluded that corporate governance can still benefit firms during a crisis by ensuring that capital is allocated for long-term value maximization, leading to positive effects of capital investments on firm value. Overall, these findings provide a unique contribution to the literature regarding the impact of corporate governance and COVID-19 on firms.

2. LITERATURE REVIEW

2.1 Corporate Governance and Firm Value

The relationship between corporate governance and a company's market valuation has been extensively examined in both developed and emerging markets. Numerous researchers have constructed an overall governance index to assess the impact of comprehensive corporate governance practices on firm value (Black, 2001; Black, Jang, et al, 2006; Black, Love, et al., 2006; Bozec & Bozec, 2012; Cheung et al., 2007; Durnev & Kim, 2005; Rahman & Khatun, 2017). This method acknowledges that various corporate governance mechanisms can serve as substitutes for one another, emphasizing the importance of evaluating the overall quality of corporate governance when studying its impact on firm performance.

Cheung et al. (2014) explored the link between corporate governance and firm value in China, Hong Kong, Philippines, Indonesia, and Thailand, using a corporate governance index (CGI) based on the OECD Principles of Corporate Governance (OECD, 2004) to evaluate the quality of corporate governance practices. Their findings indicated a positive relationship between a company's market valuation, measured by Tobin's q, and the overall CGI score, suggesting that strong corporate governance practices are associated with value maximization. There is also empirical evidence that high-quality corporate governance practices positively impact firm value in other Asian economies, such as India (Khandelwal et al., 2023), Korea (Black, Jang, et al, 2006; Pae & Choi, 2011), Taiwan (Huang et al., 2008; Wang & Lee, 2012; Yang et al., 2012), Turkey (Ararat et al., 2017) and Vietnam (Connelly et al., 2017). Overall, the cross-country evidence supports the idea that robust corporate governance practices align with value maximization in emerging economies within the Asia-Pacific region.

The 1997 Asian Financial Crisis, often referred to as the "Tom Yum Koong" crisis, signified by the devaluation of the Thai baht, caused widespread economic turmoil throughout the region. Subsequent research indicates that the financial crisis in Thailand was caused by overinvestment in the private sector and mismanagement of financial institutions, stemming from poor corporate governance. In the wake of the crisis, Thai authorities began to take corporate governance seriously, recognizing the need for stricter regulations and better oversight of financial institutions to prevent similar crises in the future (Lauridsen, 1998). Consequently, new laws and regulations were enacted to enhance corporate governance practices among public companies and to fortify the oversight of securities markets (Jongsureyapart et al., 2012). Additionally, the Stock Exchange of Thailand and the Thailand Securities and Exchange Commission adopted the OECD's Corporate Governance Principles to develop new guidelines, emphasizing shareholder rights, board responsibilities, stakeholder roles, disclosure and transparency, and equitable treatment of (minority) shareholders. Connelly et al. (2012) documented that better corporate governance practices are positively related to firm value in Thailand.

2.2 COVID-19 and Its Financial Impact

The spread of COVID-19 created severe economic challenges for firms. Quarantine protocols and limited physical meetings created a challenging situation for firms, specifically those directly connected with social activities such as transportation, international travel, and dining. Salisu et al. (2022) analyzed the economic impact of the pandemic on emerging (Brazil, India, China, and South Africa) and advanced economies (US, UK and Germany), finding that the pandemic negatively affected the real GDP of both advanced and emerging economies. Zhang et al. (2021) examined the effect of the COVID-19 pandemic on economic sentiments in 36 countries worldwide, documenting a significant negative impact of the pandemic on economic confidence, especially industrial confidence.

The effects of the pandemic on firms encompass a range of changes, from corporate policies to financial performance (Zhong et al., 2022). From a financial perspective, the pandemic has introduced increased risk. For example, Albulescu (2021) observed that infection rates and fatalities influenced the volatility of the US stock market. Zhang et al. (2020) investigated macroeconomic policies implemented during the COVID-19 pandemic, documenting the presence of country-specific and systematic risk patterns in financial markets worldwide. In addition, the sentiment generated by COVID-19-related news has been found to have impacted stock return volatility (Haroon & Rizvi, 2020). Akhtaruzzaman et al. (2021) revealed that both financial and non-financial firms in China and G7 countries experienced significant increases in correlations among their stock returns following the onset of the pandemic. They also documented that financial firms exhibited a more pronounced increase in

correlations. Furthermore, So et al. (2021) observed a significant shift in the nature of financial market interconnectedness in Hong Kong during the COVID-19 crisis compared to previous crises. Utilizing data from the twenty hardest-hit countries, Salisu and Vo (2020) proposed that health news searches can serve as predictors of stock returns. Including health news in prediction models improves performance, surpassing historical benchmarks, and incorporating macroeconomic factors and financial news, further enhances accuracy (Salisu & Vo, 2020).

Numerous studies have indicated that financial asset returns and their predictability are also influenced by the pandemic. Ciner (2021) found investment grade and high yield bonds to be reliable predictors of U.S. stock returns during the COVID-19 crisis. Salisu et al. (2020) examined the predictive power of the global fear index (GFI) on commodity prices during the pandemic, finding a positive relationship between the index and commodity prices. This suggests that, in times of crisis, the commodities market acts more as a safe haven compared to the stock market. Given the evidence presented in the literature, it is clear that the COVID-19 pandemic significantly impacted all firms.

3. HYPOTHESIS DEVELOPMENT

3.1 Capital Investments and Firm Value during the COVID-19 Pandemic

Capital investment decisions are complex, involving a range of factors that must be carefully considered, such as financial slack, cost of capital, and economic conditions (Cleary, 2005; Henry, 2003; Gao & Yu, 2020; Salahuddin & Islam, 2008). Capital investment can positively impact firm performance by increasing the productivity and efficiency of a firm's operations. When companies consider investing in fixed assets, management has a lengthy process for assessing and authorizing the investments. This process includes keeping track of and assessing the performance of those investments (Hutchinson & Gul, 2004). Therefore, investment in those assets should provide an appropriate return for the companies.

Due to the COVID-19 pandemic, consumers reduced their spending on unnecessary goods because of economic uncertainty or job loss. Meanwhile, investing in new machinery or equipment can help firms produce goods or services more quickly and at a lower cost, resulting in increased profitability. Examining a sample of Chinese companies during the COVID-19 pandemic, Shen et al. (2020) showed that COVID-19 had a negative impact on the profitability of listed Chinese companies. In addition, they found that the negative effect on profitability is less pronounced when companies increased their capital investments during the pandemic period. In addition to profitability, this study also focuses on long-term firm value. Capital investment is typically considered a long-term investment as the assets acquired through capital investment are expected to generate returns over an extended period of time, typically several years.

From a long-term perspective, capital investments can also be risky and do not always lead to improved long-term performance (Phan & Nguyen, 2020; Salahuddin & Islam, 2008). With lower productive use of assets, many businesses reduced their fixed asset investments, attempting to preserve cash on hand in order to be prepared for the uncertain future (Farooq et al., 2021). In fact, companies should postpone capital investments when faced with an uncertain business climate and risk (Ming et al., 2016). If the assets acquired through capital investment do not generate sufficient returns or if the economic environment changes in a way that affects the firm's operations, the capital investment may not provide the expected benefits. In this study, it is proposed that capital investments during the COVID-19 pandemic could lead to low firm value. Therefore, the first hypothesis is proposed as follows:

H1: There was a negative relationship between capital investments and firm value during COVID-19.

3.2 Corporate Governance and Capital Investments during the Pandemic

Corporate governance encompasses the system of rules, practices, and processes by which a company is directed and controlled. It is widely believed that effective corporate governance can lead to better performance by aligning the interests of shareholders and management, promoting transparency, and reducing the risk of fraud and unethical behavior (Monks & Minow, 2011). Under normal or non-crisis conditions, high-quality corporate governance practices help ensure proper management for both internal and external stakeholders. These practices also help to ensure that a company is run in an ethical, fair, and transparent manner, which can lead to improved performance and increased trust from stakeholders (Cheung et al., 2007, 2010; Connelly et al., 2012). Prior studies on corporate governance provide empirical evidence of a positive relationship between the quality of corporate governance practices and firm value (Klapper & Love, 2004; Durnev & Kim, 2005; Connelly et al., 2012; Puni & Anlesinya, 2020).

Corporate governance practices can moderate the association between capital investment and financial performance by providing a framework for effective decision-making and oversight. This includes establishing clear procedures for evaluating and approving investment opportunities, as well as monitoring and evaluating the performance of those investments (Hutchinson & Gul, 2004). Additionally, strong corporate governance practices ensure that investments are made strategically and efficiently, with a focus on long-term value creation. This can lead to improved firm value as the company is able to effectively allocate its capital and achieve its goals. Hutchinson and Gul (2004) and Al-Gamrh et al. (2018) posited that a more comprehensive understanding of the influence of corporate governance can be attained by scrutinizing it as a moderating factor. Several studies in Asian markets have documented the moderating effects of good corporate governance. For instance, Shen and Lin (2010) found that good corporate governance strengthens the relationship between fundamentals and stock returns in Taiwan. Kwon et al. (2022) demonstrated that high-quality corporate governance practices can mitigate the negative impact of production suspensions on Korean firms.

The outbreak of the COVID-19 pandemic caused significant economic uncertainty and disrupted global supply chains, which may have led firms to become more cautious about making substantial capital investments. Therefore, corporate governance played a crucial role in capital investment decisions during the pandemic by overseeing the decision-making process. Good corporate governance ensures that firms have robust processes for evaluating and comparing different investment opportunities and monitoring and controlling the risks associated with these investments (Albuquerque et al., 2020; Jebran & Chen, 2021). Khatib and Nour (2021) found that corporate governance attributes, such as board diversity, significantly enhance firm performance during a pandemic such as COVID-19. As a result, the role of corporate governance in capital investment decisions during the pandemic was vital for helping firms navigate economic uncertainty and make informed decisions about how to allocate their resources. Thus, the second hypothesis is proposed as follows:

H2: Corporate governance positively moderated the relationship between capital investment and firm value during the COVID-19 pandemic.

4. METHODOLOGY

4.1. Data and Sample

The sample consisted of non-financial firms publicly traded on the Stock Exchange of Thailand (SET) over a period from 2015 to 2021. Financial data were retrieved from

Thomson Reuter's Datastream. The corporate governance scores were obtained from the annual corporate governance base-lining report developed by the Thai Institute of Directors (Thai IOD). After excluding observations with missing data, an unbalanced panel sample of 3,499 firm-year observations involving 686 firms was generated.

4.2. Model Specifications

The first objective was to replicate the findings of Shen et al. (2020), who analyzed the impact of COVID-19 on profitability using data from listed companies in China. This replication aims to ensure that the results of this study are not specific to the unique sample from Thailand and can be generalized to other emerging markets. Model (1) was employed to test the effect of COVID-19 on profitability, while Model (2) incorporates the interaction effects of capital investments and corporate governance. We also included key firm characteristics and industry characteristics to control for relevant factors that could also explain variation in profitability. The highest variance inflation factor (VIF) for key variables in the analysis was below 1.35, indicating that multicollinearity was not a concern in these models.

$$BEP_i = \beta_0 + \beta_1 FSIZE_i + \beta_2 LEV_i + \beta_3 LIQ_i + \beta_4 FIX_i + \beta_5 CAPEX_i + \beta_6 GoodCG_i + \beta_7 COVID19 + \beta_j INDUS_j + \varepsilon_i \quad (1)$$

$$BEP_i = \beta_0 + \beta_1 FSIZE_i + \beta_2 LEV_i + \beta_3 LIQ_i + \beta_4 FIX_i + \beta_5 CAPEX_i + \beta_6 GoodCG_i + \beta_7 COVID19 + \beta_8 CAPEX_i \times COVID19 + \beta_9 GoodCG_i \times COVID19 + \beta_{12} INDUS_i + \varepsilon_i \quad (2)$$

The primary objective of this study was to examine the moderating effect of corporate governance on the relationship between capital investment and firm value during the COVID-19 pandemic. This focus was motivated by the close interconnection between profitability and firm value, as each influences the other in significant ways. For instance, high profitability signals strong operational performance, which often translates into higher valuations in capital markets. Investors rely on earnings metrics to assess a firm's ability to generate future cash flows. Profitable firms are also more likely to distribute dividends or reinvest earnings into growth opportunities, both of which enhance intrinsic firm value. Dividend distributions provide immediate returns to shareholders, while reinvestment increases future earnings potential. In this context, profitability can be interpreted as a measure of short-term firm performance, whereas firm value reflects long-term performance. Consequently, profitability (BEP) is incorporated as a control variable in Models (3) and (4). The highest variance inflation factor (VIF) for key variables in the analysis is below 1.41, indicating that multicollinearity is not a concern in these models.

The following OLS regression model was used to test the effect of COVID-19, capital investments and corporate governance on firm value while controlling for other firm characteristics and industry characteristics:

$$TOBIN'S\ Q_i = \beta_0 + \beta_1 FSIZE_i + \beta_2 LEV_i + \beta_3 LIQ_i + \beta_4 FIX_i + \beta_5 CAPEX_i + \beta_6 BEP_i + \beta_7 GoodCG_i + \beta_8 COVID19 + \beta_j INDUS_j + \varepsilon_i \quad (3)$$

$$TOBIN'S\ Q_i = \beta_0 + \beta_1 FSIZE_i + \beta_2 LEV_i + \beta_3 LIQ_i + \beta_4 FIX_i + \beta_5 CAPEX_i + \beta_6 BEP_i + \beta_7 GoodCG_i + \beta_8 COVID19 + \beta_9 CAPEX_i \times COVID19 + \beta_{10} CAPEX_i \times GoodCG_i + \beta_{11} GoodCG_i \times COVID19 + \beta_{12} GoodCG_i \times CAPEX_i \times COVID19 + \beta_{13} INDUS_i + \varepsilon_i \quad (4)$$

The interaction term in Model 4 captures the combined effect of COVID-19, capital investments, and corporate governance on the dependent variable, firm value. The interaction term enhances the understanding of relationships by revealing whether and how the effect of one variable depends on the level of another variable. This provides deeper insights beyond the individual effects of each variable.

Table 1. Variable Definitions

VARIABLES	***DESCRIPTIONS***
BEP	The measure of profitability calculated as the ratio of operating income divided by total assets (also known as, BEP, the Basic Earnings Power).
TOBIN'S Q	The sum of the market value of equity and the book value of total liabilities divided by the book value of the firm's total assets.
FSIZE	The natural logarithm of total assets, used as a proxy for firm size.
LEV	Financial leverage is the ratio between total debt and total assets.
LIQ	Firm liquidiy is the ratio between current assets and current liabilities.
FIX	Net fixed assets divided by total assets.
CAPEX	Capital expenditure is the ratio between annual changes in gross fixed assets and total assets.
GoodCG	*GoodCG* is a dummy variable indicating whether the firm is classified as having high-quality (Excellent, Very Good and Good) corporate governance practices according to the Corporate Governance Index compiled by the Thai Institute of Directors.
COVID19	A dummy variable that takes the value of '1' for the period of the COVID-19 outbreak and subsequent lockdown or '0' otherwise.
INDUS	INDUS is a dummy variable based on the industry classification by the Stock Exchange of Thailand (SET).

This table provides descriptions of all the variables used in the empirical models.

The descriptions and operationalizations of variables included in this study are presented in Table 1. The main dependent variable is Tobin's *q*, the proxy for firm valuation, which is calculated as the ratio between total liabilities plus the market value of the firm's equity and the book value of assets, representing replacement costs. This proxy for market valuation has been widely used in previous studies on corporate governance in Asia (Cheung et al., 2007; Connelly et al., 2012; Cheung et al., 2014). This study uses the operating returns on assets as a measure of profitability. This variable is also known as the Basic Earnings Power (BEP). *COVID19* is a dummy variable that takes the value of 1 for the year 2020 and 0 otherwise. In Thailand, the emergency decree and nationwide lockdown were enforced on March 26, 2020, and remained in place until July 1, 2021, when the government gradually eased restrictions. As

a result, the fiscal year 2020 is expected to be the period most affected by the COVID-19 outbreak in Thailand.

Following previous studies on capital investments (Duchin et al., 2010; Vithessonthi 2016, 2017), the proxy for the firm's capital investment (*CAPEX*) is calculated as the ratio of the change in gross property, plant, and equipment to total assets. It is widely documented that firm value is contingent on corporate investment decisions (Hutchinson & Gul, 2004; Aman & Nguyen, 2008) so the expected sign of the coefficient for *CAPEX* is positive. *GoodCG* is a dummy variable which indicates high-quality corporate governance practices. To control for firm-specific characteristics that might affect the relationship between capital investments, corporate governance practices, and firm value, a set of firm-level control variables are included in the model. Specifically, the model includes firm size (*FSIZE*), financial leverage (*LEV*) and firm liquidity (*LIQ*). In addition, it is necessary to control for the levels of capital intensity of the firm (*FIX*), as the marginal effect of capital expenditures can be different for companies that already invested heavily in previous years. To isolate the effect of capital investments, the model includes the levels of tangibility to observe the marginal effects of new capital investments. To control for unique industry effects, finally, a series of dummy variables based on the sector classification by the SET is included in the model.

4.2.1. The Quality of Corporate Governance Practice

This study adopts the corporate governance ranking developed by the Thai IOD, which is based on 241 specific criteria derived from the five components of the Corporate Governance Principles outlined by the OECD in 2004. These criteria have been tailored to account for the nuances of Thai laws and regulations (Connelly et al., 2012). The corporate governance measure employed in this study possesses two main strengths. Firstly, it surpasses traditional proxies for corporate governance by evaluating the substance rather than merely the form of corporate governance practices adopted by Thai firms. Specifically, the Corporate Governance Index (CGI) evaluates the actual quality of corporate governance by examining the related activities and disclosures implemented by firms. It provides insight into whether the observed practices are deficient (poor), fully compliant with legal requirements (good), or aligned with international best practices (best). Secondly, the strength of this measure lies in its foundation, being based on economic and financial research findings and theories. It incorporates the empirical conclusions supported by prior research, which form the basis for the OECD's Corporate Governance Principles. Cheung et al. (2010) and Connelly et al. (2012) provided a complete scorecard, including criteria spanning five sections corresponding to the OECD's principles (shareholder rights, board responsibilities, stakeholder roles, disclosure and transparency, and equitable treatment of minority shareholders). Based on these assessments, the Thai IOD categorizes firms into groups according to the overall quality of their corporate governance practices. In this study, firms which received a high-level rating (Excellent, Very Good and Good) from the Thai IOD are classified as having a good quality of corporate governance practices.

Table 2. Descriptive Statistics of Corporate Governance Score by the Thai IOD

Year	Average Score	Max	Min	Low Level	Good	Very Good	Excellent	N
2015	75	97	37	183	191	159	55	588
				(31%)	(33%)	(27%)	(9%)	(100%)
2016	78	97	45	146	180	195	80	601
				(24%)	(30%)	(33%)	(13%)	(100%)

2017	80	97	48	113 (18%)	171 (28%)	226 (36%)	110 (18%)	620 (100%)
2018	81	98	45	100 (15%)	174 (26%)	241 (37%)	142 (22%)	657 (100%)
2019	82	98	45	89 (13%)	137 (20%)	258 (38%)	193 (29%)	677 (100%)
2020	83	98	45	76 (11%)	130 (18%)	246 (36%)	240 (35%)	692 (100%)
2021	84	98	46	55 (8%)	133 (19%)	260 (36%)	268 (37%)	716 (100%)

This table presents a summary of the results based on the evaluation of the quality of corporate governance practices conducted by the Thai Institute of Directors Association. The table presents the descriptive statistics for the corporate governance score and the percentage of companies at each score level: lower quality, good quality, very good quality, and excellent quality of corporate governance practices.

Table 2 presents the summary statistics of corporate governance reported for Thai listed companies during 2015-2021. The data shows that the overall quality of corporate governance practices among Thai companies listed on the SET has progressively improved, as evidenced by the proportion of companies recognized for having 'Good' or 'Excellent' corporate governance increasing from 69 percent in 2015 to 92 percent in 2021. In addition, the average overall CGI scores for all firms increased from 75 percent to 84 percent while the lowest scores continue to improve over time. The findings can be attributed to concerted efforts by the government and regulators to reform corporate governance practices among listed companies in Thailand. These efforts have subsequently led to increased awareness among corporate managers and local investors.

4.2.2. Interaction Terms

To test the first hypotheses, Model (1) adds interaction terms between capital investments (*CAPEX*), the pandemic dummy variable (*COVID19*), and the variable indicating the quality of corporate governance practice (*GoodCG*). Conceptually, interaction terms help identify whether the relationship between an independent variable and the dependent variable varies based on the level of another independent variable. Moreover, the interaction terms show synergies (when the combined effect is greater than the sum of individual effects) or trade-offs (when the combined effect is less than the sum of individual effects) between independent variables. The first interaction term (*CAPEX×COVID19*) focuses on the impact of the COVID-19 pandemic on the relationship between capital investments and firm value. Shen et al. (2020) showed that the negative impact of COVID-19 on profitability was less pronounced for companies that invested heavily during the period. A positive sign for *CAPEX×COVID19* would mean that capital investments during the pandemic period have a similar positive impact on firm profitability (Shen et al., 2020) and firm value. In contrast, a negative sign for *CAPEX×COVID19* would imply that capital investments during the pandemic actually hurt firm value.

To examine the moderating effect of the quality of corporate governance on the relationship between capital investments during the COVID-19 pandemic and firm value, the interaction term between the quality of corporate governance practices, capital investments and the year of the pandemic (*GoodCG×CAPEX×COVID19*) is added to Model (1). Good governance practices can potentially help to build investor confidence and increase the value of the company as they can be employed as a mechanism to control agency problems (Agrawal & Knoeber, 1996; Bekiris & Doukakis, 2011). This improves the company's

financial performance, offering a downside risk protection in times of crisis by promoting transparency, accountability, and responsible management of resources (e.g., Albuquerque et al., 2020; Ding et al., 2021; Lins et al., 2017; Kowalewski, 2016). The interaction term was added among corporate governance, the pandemic dummy variable, and capital investment, to investigate the synergistic effect of two variables to mitigate/exacerbate the impact of the pandemic on firm performance. A significant positive coefficient for the interaction term provides empirical support for Hypothesis 2.

5. EMPIRICAL RESULTS

5.1. Descriptive Statistics

Table 3. Descriptive Statistics

	All Firms (1)	Before COVID-19 (2)	During COVID-19 (3)	t-statistic (2)-(3)
Tobin's q	1.329	1.371	1.126	4.25***
	(1.403)	(1.428)	(1.259)	
BEP	0.028	0.030	0.017	3.19***
	(0.096)	(0.096)	(0.096)	
FSIZE	8.525	8.538	8.461	1.07
	(1.605)	(1.601)	(1.627)	
LEV	0.451	0.451	0.451	-0.04
	(0.201)	(0.198)	(0.212)	
LIQ	0.079	0.077	0.087	-2.32**
	(0.078)	(0.087)	(0.945)	
FIX	0.361	0.358	0.377	-1.85*
	(0.235)	(0.234)	(0.239)	
CAPEX	0.025	0.020	0.046	-6.42***
	(0.089)	(0.084)	(0.110)	
Observation	3,499	2,893	606	

This table presents summary statistics for all variables. Standard deviations are shown in parentheses. t-statistics are calculated for the differences between the period before COVID-19 and during COVID-19. *, **, and *** denote statistically significant differences at the 10, 5, and 1 percent levels respectively.

Table 3 shows descriptive statistics for selected variables for the full sample. In addition, the sample is partitioned into two sub-samples based on the COVID-19 pandemic year. From the results, an interesting pattern emerges. First, the results show a negative impact of the COVID-19 pandemic on firm profitability and performance. The average profitability, as measured by BEP, declines from 3 percent during the years before the COVID-19 pandemic to 1.7 percent during the pandemic. The observed decline in profitability among Thai companies is similar to the experience of Chinese firms as documented by Shen et al. (2020). At the same time, the average Tobin's *q* drops from 1.371 to 1.126 during the pandemic showing that firm value also declines as a result of the pandemic.

The descriptive statistics also show that firm size and financial leverage did not change significantly during the pandemic. Interestingly, firm liquidity increases significantly during the pandemic. This is a result of companies trying to preserve cash during difficult times. The overall proportion of tangible assets also increases significantly during the pandemic from 35.8 percent to 37.7 percent. This is due to an increase in capital investments during the

pandemic from 2 percent before the pandemic to 4.6 percent during the pandemic. In the end, the results show an interesting dynamic. With declining economic activities during the pandemic, what will be the impact of increased capital investments on profitability and market valuation?

Table 4. Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ***Tobin's q***	1.000						
(2) ***BEP***	0.239***	1.000					
(3) ***FSIZE***	-0.079***	0.136***	1.000				
(4) ***LEV***	-0.201***	-0.263***	0.337***	1.000			
(5) ***LIQ***	0.221***	0.114***	-0.182***	-0.317***	1.000		
(6) ***FIX***	0.032*	0.007	0.059***	0.029*	-0.197***	1.000	
(7) ***CAPEX***	0.061***	0.094***	0.067***	0.053***	0.023	0.245***	1.000

Table 4 presents correlation coefficients among variables used in the study. *, **, and *** denote statistically significant differences at the 10, 5, and 1 percent levels respectively.

The correlation matrix is presented in Table 4. All correlation coefficients between key variables are below 0.50, suggesting that multicollinearity is unlikely to be a concern. As expected, capital investment is positively correlated with profitability and firm value, as measured by Tobin's q. Interestingly, firm size exhibits a negative correlation with Tobin's q but a positive correlation with profitability. Although large companies reap the benefits of having high profitability, their potential for long-term growth is limited, resulting in a negative relationship between firm size and firm value. Financial leverage is negatively correlated with both profitability and firm value, whereas liquidity shows a positive correlation with both. It should be noted that the correlation between FIX and CAPEX is relatively low, indicating that the levels of existing investments and new capital expenditures are not always related. In the end, these correlation analysis results underscore the importance of controlling for other important factors in the empirical testing.

5.2. Regression Results and Discussions

Table 5 presents the results of the regression analysis examining firm profitability, measured by basic earning power (BEP) or operating returns on assets. The analysis aims to replicate the findings of Shen et al. (2020) using a sample of Thai listed companies during the COVID-19 pandemic. In Model (1), the results reveal that, consistent with the findings for Chinese firms, Thai listed companies also suffered a decline in profitability during the pandemic. The coefficient of *COVID19* is negative (-0.019) and statistically significant at conventional levels (t = -4.84). In addition, the coefficient of *GoodCG* is positive (0.036) and statistically significant (t = 9.86), indicating that good corporate governance is positively associated with firm profitability. In Model (2), the interaction term (*CAPEX*×*COVID19*) is positive (0.125) and statistically significant (t = 4.60), indicating that firms with higher capital investment during the pandemic, exhibit higher profitability. This finding aligns with Shen et al. (2020), who also found that the negative impact of the pandemic is alleviated by the level of capital investment. Overall, the results from Chinese firms appear to be generalizable among Thai firms as well.

Table 5. Regression Results for Profitability

	Model (1)	Model (2)
FSIZE	0.013***	0.013***
	[12.19]	[12.20]
LEV	-0.147***	-0.148***
	[-17.63]	[-17.79]
LIQ	0.074***	0.074***
	[3.98]	[3.99]
FIX	-0.018**	-0.018**
	[-2.53]	[-2.52]
CAPEX	0.113***	0.076***
	[6.58]	[4.01]
GoodCG	0.036***	0.035***
	[9.86]	[8.83]
COVID19	-0.019***	-0.033**
	[-4.84]	[-3.15]
CAPEX×COVID19		0.125***
		[4.60]
GoodCG×COVID19		0.012
		[1.14]
Constant	-0.054***	-0.051***
	[-5.16]	[-4.86]
Sector Dummy Variables	Yes	Yes
Adjusted R^2	0.176	0.181
Observations	3,499	3,499

This table presents the OLS regression results for firm profitability, as measured by operating returns on assets or Basic Earning Power (*BEP*). t-statistics are shown in parentheses. *, **, and *** denote statistically significant differences at the 10, 5, and 1 percent levels respectively.

Table 6 presents the regression results with firm value, as measured by Tobin's q, as the dependent variable, based on the models specified in Equations (3) and (4). The objective of this analysis is to empirically test both the direct and indirect interaction effects of capital investment and corporate governance on firm valuation during the COVID-19 pandemic, while controlling for relevant factors. Using the baseline regression (Model 3), the coefficient for the pandemic period (COVID19) was found to be negative (-0.132) and statistically significant at conventional levels (t = -2.15), indicating that the pandemic negatively affected firm value in Thailand. Interestingly, the coefficient for good corporate governance (GoodCG) was not statistically significant (t = -1.57), suggesting that good corporate governance no longer exhibits a positive relationship with firm value in Thailand. It is conjectured that, with aggressive reform measures by regulators, the positive impact of good corporate governance documented in previous studies (e.g., Connelly et al., 2012; Cheung et al., 2014; Hodgson et al., 2011) has gradually dissipated as the majority of listed companies in Thailand have fully adopted good corporate governance practices. It has been argued that the impact of corporate governance can be better explained when examined as a moderating variable (Hutchinson & Gul, 2004; Al-Gamrh et al., 2018). Therefore, this study aims to

explore the indirect effect of good corporate governance on the relationship between capital investments and firm value.

Large firms with high leverage tend to have lower firm value, while high liquidity and asset tangibility are associated with higher firm valuation. Additionally, capital investment is positively and significantly correlated with firm performance, indicating that increased capital investment leads to higher firm valuation. This finding aligns with previous studies that have documented a positive relationship between capital investments and firm valuation in countries such as Thailand, the U.K., the U.S., and Spain (Connelly et al., 2012; Ullah et al., 2021; López-Iturriaga & Rodríguez-Sanz, 2001; Levitas & Chi, 2010).

Table 6. Regression Results for Tobin's *q*

	Model (3)	**Model (4)**
FSIZE	-0.049***	-0.048***
	[-3.12]	[-3.00]
LEV	-0.549***	-0.561***
	[-4.30]	[-4.39]
LIQ	2.637***	2.632***
	[9.69]	[9.68]
FIX	0.295***	0.289***
	[2.82]	[2.76]
CAPEX	0.504**	-0.254
	[1.97]	[-0.56]
BEP	2.825***	2.913***
	[11.38]	[11.67]
GoodCG	-0.088	-0.116*
	[-1.57]	[-1.92]
COVID19	-0.132**	-0.071
	[-2.15]	[-0.49]
CAPEX×COVID19		-1.302***
		[-2.58]
CAPEX×GoodCG		1.166**
		[2.04]
GoodCG×COVID19		-0.093
		[-0.59]
GoodCG×CAPEX×COVID19		1.849**
		[2.23]
Constant	1.459***	1.468***
	[9.31]	[9.35]
Sector Dummy Variables	Yes	Yes
Adjusted R^2	0.170	0.175
Observations	3,499	3,499

This table presents the OLS regression results for firm valuation, as proxied by Tobin's *q*. t-statistics are shown in parentheses. *, **, and *** denote statistically significant differences at the 10, 5, and 1 percent levels respectively.

In the next model (Model 4), interaction terms were added in order to evaluate the moderating effect of corporate governance on the relationship between capital investment and firm valuation during the pandemic. The interaction term (CAPEX×COVID19) was used to

test Hypothesis 1, which predicts that capital investments amplify the negative impact of COVID-19 on firm value. The coefficient for the interaction term was negative (-1.302) and statistically significant (t = -2.58). This negative and statistically significant coefficient for *CAPEX×COVID19* suggests that capital investments exacerbate the negative effect of COVID-19 on firm value. In other words, firms with higher capital investment are more likely to deteriorate in value during the pandemic crisis. This finding contrasts with Shen et al. (2020), who found that high fixed capital investments weaken the negative impact of the pandemic on firm performance, as measured by profitability, for their sample of firms. Although capital investments can help increase profitability, investing heavily during the pandemic carries risks and may not consistently result in enhanced long-term performance (Phan & Nguyen, 2020; Salahuddin & Islam, 2008). Due to diminished productive utilization of assets during the pandemic, companies should curtail their fixed asset investments and prioritize cash preservation to navigate an uncertain future (Ming et al., 2016; Farooq et al., 2021). Based on the results of this study, it is concluded that while capital investments improve firm profitability, they could harm long-term firm value during the pandemic.

To test Hypothesis 2, which posits that the quality of corporate governance practices moderates the relationship between capital investments and firm value during the pandemic, the 3-way interaction term among corporate governance, capital investments and the COVID-19 period (*GoodCG×CAPEX×COVID19*) was added to the baseline model as outlined in Equation (3). The results in Table 6 show that the coefficient for the 3-way interaction term is positive (1.849) and statistically significant (t = 2.23) at conventional levels. Hypothesis 2 is based on the assumption that firms with good corporate governance can allocate funds for capital investments more efficiently, leading to higher firm value even during the pandemic crisis. Therefore, the positive and statistically significant coefficient on the 3-way interaction term suggests that good corporate governance practices enhance the effectiveness of capital investment in mitigating the negative effects of COVID-19 on firm performance during the crisis. This finding provides strong support for Hypothesis 2.

The findings also reveal that good corporate governance does not have a positive relationship with firm value in Thailand. In fact, the coefficient for *GoodCG* is negative (-0.116) and statistically significant at the 10 percent level (t = -1.92). The negative relationship also remained consistent through the pandemic period as indicated by the non-significant coefficient for the interaction term (GoodCG×COVID19) at conventional levels (t = -0.59). Consequently, it is concluded that, in recent times, good corporate governance no longer provides direct benefits to firms but still provides indirect benefits by moderating the relationship between capital investments and firm value.

Overall, the results in Table 6 appear to suggest that the quality of corporate governance does not provide a direct effect on firm performance during either crisis or non-crisis periods. However, corporate governance can act as a shield, protecting firms from the pandemic crisis by effectively managing capital investment to generate firm value. This is evidenced by the positive and statistically significant coefficient of the interaction term between corporate governance, capital investment, and the COVID-19 dummy variable. This finding is consistent with prior studies contending that corporate governance should be examined as a mechanism influencing the decisions made by managers (Michelberger, 2016). The governance of a company can significantly influence the relationships between various variables, thereby affecting firm performance and valuation (Hutchinson & Gul, 2004; Minnick & Noga, 2010; Rabi et al., 2010). In summary, the empirical results indicate that the quality of corporate governance practices can enhance the positive impact of capital investments and mitigate the negative impact of the COVID-19 pandemic on firm value.

6. CONCLUSION

This study merges two research streams: (i) the impact of COVID-19 on firm performance in the Asia-Pacific region and (ii) the relationship between corporate governance and firm value in Asia. Building on prior studies examining the effect of the COVID-19 pandemic on firm profitability, this study specifically investigates the relationship between capital investments and firm value, as measured by Tobin's *q* during the COVID-19 pandemic and how the quality of corporate governance practices can moderate this relationship for the benefit of firms.

The role of capital investment in driving firm growth is of paramount importance, enabling companies to expand operations, increase production capacity, and venture into new product lines or markets. However, the global outbreak of COVID-19 had adverse effects on businesses worldwide. Previous research has highlighted the influence of capital investments on firm profitability during this pandemic, showing that COVID-19 negatively impacted firm profitability in China. However, studies also find that Chinese companies which made significant capital investments during that period experienced some level of mitigation of this negative effect. The results from this study confirm that the COVID-19 pandemic also negatively impacted firm profitability in Thailand. Additionally, consistent with previous studies, the findings indicate that capital investments can alleviate the negative impact of the pandemic on firm profitability. This suggests that the results from other countries are also generalizable to Thailand.

More importantly, the second part of this study turns the focus from short run profitability to long-term firm valuation, as measured by Tobin's *q*. The results show that capital investment is positively associated with firm value suggesting that, as hypothesized, an increase in capital investment leads to an increase in firm value. This finding is consistent with prior studies that document a positive relationship between capital investment and firm value in several countries (e.g., Connelly et al., 2012; Levitas & Chi, 2010; López-Iturriaga & Rodríguez-Sanz, 2001; Ullah et al., 2021;). In addition, the results also show that, consistent with the results for profitability, the pandemic negatively affects firm value. Further, the findings also indicate that capital investment exacerbates the negative impact of COVID-19 on firm performance. In other words, companies with higher capital investment are more likely to experience a decline in their value during the pandemic crisis. This is consistent with the notion that capital investments can be risky and do not always guarantee improved long-term firm value. If the assets acquired through capital investment fail to yield sufficient returns or if the economic environment undergoes changes that impact the firm's operations, the anticipated long-term benefits from the capital investment may not materialize even though the firms see benefits in the short run (in the form of high profitability). Therefore, it is prudent for companies to delay capital investments in times of unpredictable business climate and scale back their fixed asset investments to conserve cash in order to prepare for an uncertain future.

The study examines the moderating effect of corporate governance on the negative relationship between capital investments and firm value during the pandemic. The results show that good corporate governance practices alleviate the negative impact of capital investments on firm value during COVID-19. While capital investments can boost short-term profitability, heavy investments during the pandemic come with risks and may not consistently lead to improved long-term performance. However, good corporate governance ensures that capital is allocated to value-enhancing projects. In contrast, companies with poor quality of corporate governance practices made unhealthy capital investments during the pandemic, leading to lower firm value. Thus, the adoption of internationally accepted

corporate governance practices is crucial for Thai firms, providing a solid foundation for stability, resilience, and responsible investment decisions.

In summary, the findings show that when corporate governance is employed as a controlling mechanism to efficiently manage capital investment and generate firm value, it can serve as a protective shield for firms during times of crisis, such as the COVID-19 pandemic. This finding is significant for both regulators and management in emerging market countries. Regulators should persist in their efforts to advocate for the adoption of internationally accepted corporate governance practices, while management should prioritize its implementation. By emphasizing transparency, fair treatment of shareholders, fulfilling board responsibilities, and respecting stakeholders' legitimate rights, effective corporate governance practices can ensure well-informed and prudent investment decisions that ultimately lead to the enhancement of firm value.

In the end, the outcomes of this study also have broader implications for other countries in the emerging market. Nonetheless, this study is not without limitations. It should be noted that the results from this study may not be directly applicable to developed markets due to the presence of advanced financial systems and robust investor protection measures that can help enhance investor confidence and security.

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