

**THE EFFECT OF DEBT MATURITY
ON THE RELATIONSHIP BETWEEN
CORPORATE GOVERNANCE, CORPORATE
RISK-TAKING AND INVESTMENT EFFICIENCY:
EVIDENCE FROM THAILAND**

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UNIVERSITI SAINS MALAYSIA

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by

PANERN INTARA

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LIST OF ABBREVIATIONS

CG	Corporate Governance
CSR	Corporate Social Responsibility Strategy Score
MGT	Management Score
SHR	Shreholders Score
CRT	Corporate Risk-taking
InvEFF	Investment Efficiency
STD	Short term Debt
LTD	Long term Debt
TD	Total Debt
SDTD	Short-term Debt to Total Debt
DM	Debt Maturity
SET	The Stock Exchange of Thailand
SEC	The Securities and Exchange Commission
Thai IOD	Thai Institute of Director Association
OECD	The Organization for Economic Cooperation and Development

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**KESAN KEMATANGAN HUTANG TERHADAP HUBUNGAN
ANTARA TADBIR URUS KORPORAT, PENGAMBILAN RISIKO
KORPORAT DAN KECEKAPAN PELABURAN: BUKTI DARI THAILAND**

ABSTRAK

Kajian ini bertujuan untuk menyelidiki hubungan antara tadbir urus korporat, pengambilan risiko korporat, dan kecekapan pelaburan, serta menentukan kesan interaksi tempoh matang hutang terhadap hubungan antara tadbir urus korporat dan kecekapan pelaburan, serta kesan interaksi tempoh matang hutang terhadap hubungan antara pengambilan risiko korporat dan kecekapan pelaburan dalam kalangan syarikat tersenarai di Thailand. Sampel kajian ini terdiri daripada 1,206 pemerhatian firma-tahun bagi 193 syarikat awam dari tahun 2017 hingga 2022. Pembolehubah bebas utama ialah tadbir urus korporat dan pengambilan risiko korporat. Skor keseluruhan tadbir urus korporat dan tiga kategori tadbir urus korporat, iaitu Skor Strategi CSR, Skor Pengurusan, dan Skor Pemegang Saham, diperoleh daripada Refinitiv Eikon Datastream. Sisihan piawai tetingkap bergulir tiga tahun bagi pulangan atas aset (ROA) digunakan untuk mengukur pengambilan risiko korporat, manakala terma baki daripada model pelaburan optimum digunakan untuk mengukur kecekapan pelaburan. Data bagi pembolehubah lain diperoleh daripada pangkalan data SETSMART. Penemuan utama penyelidikan ini diperoleh dengan menggunakan kaedah momen umum (GMM), bagi menangani masalah keendogenan dan menghasilkan penganggar yang lebih mantap dan konsisten. Penemuan menunjukkan bahawa korporat mempunyai kesan positif yang signifikan terhadap kecekapan pelaburan, dan tempoh matang hutang memperkukuhkan kesan ini. Strategi CSR dan pengurusan memberi kesan positif terhadap kecekapan pelaburan. Semakin berkesan strategi CSR dan

pengurusan, semakin tinggi kecekapan pelaburan. Tempoh matang hutang juga memainkan peranan interaksi positif dalam memperkukuh keberkesanan strategi CSR dan pengurusan terhadap kecekapan pelaburan. Sebaliknya, pengambilan risiko korporat memberi kesan negatif terhadap kecekapan pelaburan, dan terdapat kesan interaksi tempoh matang hutang yang memperkukuhkan kesan negatif pengambilan risiko korporat terhadap kecekapan pelaburan. Kesan negatif pengambilan risiko korporat terhadap kecekapan pelaburan adalah lebih kuat dalam firma yang mempunyai tempoh matang hutang jangka pendek. Dua ujian ketahanan dijalankan untuk meneliti bukti dan memastikan kredibiliti penemuan ini. Penemuan kajian ini boleh dimanfaatkan oleh eksekutif dan pelabur dalam membuat keputusan strategik. Selain itu, penggubal dasar boleh menggunakan hasil kajian ini untuk menggalakkan syarikat-syarikat tersenarai melaksanakan prinsip-prinsip tadbir urus dengan lebih komprehensif, seterusnya menyumbang kepada pembangunan jangka panjang pasaran modal Thailand.

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ABSTRACT

This research aims to investigate the relationship between corporate governance, corporate risk-taking, and investment efficiency and to determine the interaction effect of debt maturity on the relationship between corporate governance and investment efficiency and the interaction effect of debt maturity on the relationship between corporate risk-taking and investment efficiency of Thai companies. The study's sample comprises 1,206 firm-year observations of 193 public firms from 2017 to 2022. The main independent variables are corporate governance and corporate risk-taking. The overall corporate governance score and three corporate governance categories, namely, CSR Strategy Score, management Score, and shareholders score, have been retrieved from the Refinitiv Eikon Datastream. The three-year rolling window standard deviation of return on assets was used to measure corporate risk-taking. The residual term from the optimal investment model was used to measure investment efficiency. Data for other variables were obtained from the SETSMART database. The main findings of this research are obtained the generalized method of moments (GMM), which addresses endogeneity and produces more robust and consistent estimators. The findings indicate that corporate governance produces a significant positive impact on investment efficiency. The debt maturity reinforces this impact. CSR strategy and management positively impact investment efficiency. The more effective the CSR and management, the better investment efficiency. Debt maturity has a positive interacting role in the effectiveness of CSR on investment

efficiency and a positive interacting role in the effectiveness of the management on investment efficiency. Corporate risk-taking negatively impacts investment efficiency. There is an interaction effect of debt maturity on the effectiveness of corporate risk-taking on investment efficiency. The negative effect of corporate risk-taking on investment efficiency is stronger for firms with short debt maturity. Two robustness tests are performed to examine the evidence and ensure the findings' creditability. Executives and investors may use the findings. Additionally, the policymakers might use the findings to encourage listed companies to implement this principle more comprehensively, thus contributing to the long-term development of the Thai capital market.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

The financial manager's investment decision is critical for maximizing firm value and shareholders' wealth (Diary, 2022; CFI Team, 2022), especially investment decisions in long-term assets, capital expenditures, or research and development (Babcock et al., 2021), defined as key assets used to produce goods or services as well as a source of income for firms. The investment decision is therefore the most significant usage of a firm's resources. Moreover, investing activities are also a vital driver of the company's cash flow and expansion, which are undoubtedly critical factors of a company's value (Ohlson, 1995; Suteja et al., 2023).

Capital investment is often anticipated generate future economic benefits for the firm over the long term. Management's role in R&D investment decision-making impacts the company's survival, growth potential, competitiveness, and firm value (Yıldırım, 2020; Chalmers et al., 2020; Diary, 2022). Although R&D investment is highly uncertain, and the return on investment may not be realized in the short term, these investments are essential to establishing a strong competitive advantage (Ehie & Olibe, 2010). Firm R&D investment plays a significant role in creating growth opportunities (Bae & Noh, 2001), and contributes to creating a high multiplier effect in developing national competitiveness (Walwyn, 2007; Celli et al., 2021). Therefore, a corporate investment decision is necessary to increase firm value, including shareholder wealth. However, investment decisions are distinct from other decisions, such as financing decisions. The rationale for this is that they often result in a significant amount of cash outflow, i.e., a high capital requirement, and involve cash flow uncertainty, which can affect the company's risks and returns in the long run.

Under neoclassical theory, firms will continue to invest until the marginal cost equals the marginal benefit. (Gomariz & Ballesta, 2014). In an imperfect market, firms may invest at levels that differ from the optimal resulting in either overinvestment or underinvestment. These are all due to the existence of information asymmetry between management and other stakeholders, which affects the efficiency investment. Inappropriate levels of investment or inefficient corporate investment, whether overinvestment or underinvestment, all negatively impact the firm in numerous dimensions. For example, due to overinvestment, the firm loses capital resources from executing non-value-added projects, and the firm may lose profit opportunities due to neglect of investment in value-enhancing projects.

In recent decades, corporate governance, hereafter abbreviated as CG, has gained significant attention and evolved. It is a management philosophy that emphasizes efficiency, transparency, accountability, and consideration of all stakeholders. Good CG benefits companies, especially in fundraising, and promotes the overall capital market. OECD (2014) indicated that effective CG improves a firm's image, mitigates risks, and increases investor confidence. Moreover, strong CG establishes a set of effective mechanisms and internal control systems that contribute to the growth of firms. CG involves supervisory measures designed to protect stakeholders' interests (La Porta et al., 2000; Utama et al., 2017), as well as to control behavior so that the interests of management are consistent with the benefits of investors (Jacoby et al., 2019). Additionally, strong CG encourages appropriate managerial decisions and helps prevent overinvestment (Core et al., 2006). Strong CG enhances financial reports quality and market efficiency, thereby influencing investment decisions (Baker & Wurgler, 2004; Polk & Sapienza, 2009). CG is, therefore, a safeguard for shareholders and investors.

Implementing CG mechanisms is related to investment efficiency in many dimensions. These mechanisms aim to minimize conflicts of interest or agency conflicts, reduce financing costs, and address underinvestment issues (Chung & Zhang, 2011). CG practices also lessen the management's opportunistic behavior, strengthen the control system, and protect the interests of shareholders. All of these factors lead to more effective decision-making by executives. In such cases, the ability to reduce opportunistic behavior and agency conflicts are great importance to optimal investment decisions (Ullah et al., 2020; Chen & Xie, 2015). Moreover, firms with transparent environmental information may easily and effectively monitor management operations, resulting in high efficiency of capital allocation (Chen et al., 2011; Cheng et al., 2013). Therefore, CG mechanisms play a role in increasing investment efficiency; hereafter this text will be abbreviated as InvEFF, especially in reducing overinvestment problem dimension.

Investment decisions are typically made after a full assessment of the investment project. The investment's risk factor is among the most critical factors influencing the decision. This risk exists because it is uncertain whether the cost of the investment will be recovered or if a profit will be gained. When all information about a future scenario is known, certainty exists; making an investment decision would be simple. However, since there is uncertainty, the risk factor enters the investment decision, resulting in a probability distribution of returns (Forbes, 2009). Risk assessment is based on a long experience and information that allows for predicting likelihood outcomes. In addition, investment demand is influenced by past profitability, expected rate of return, and riskiness of the various potential investment opportunities (Harcourt et al., 1967; Andries et al., 2020). Economic uncertainties have drawn attention to corporate risk-taking, which will be abbreviated as CRT hereafter,

often playing a vital role in a company's survival. The higher CRT indicates that managers prefer risky but value-enhancing investments, which will promote the progress of production technology (John et al., 2008), as well as Andries et al. (2020), which found a statistically significant positive relationship between the firm's total assets and sales growth and the proxy for CRT, suggesting that greater levels of volatility in CRT contributed to higher firm-level growth. In addition, a higher level of risk-taking creates economic consequences for the firm, including higher capital allocation, a higher growth rate, and increased firm value (Kreiser et al., 2002).

The level of a firm's business risk is influenced by factors such as demand for its products or services, the level of competition, the cost of goods, and its profit margin. Earnings before interest and taxes, or EBIT, is an accounting measure used to assess a firm's ability or potential to operate. Therefore, the level of business risk can generally be measured by the variability in EBIT; that is, firms with high business risk tend to exhibit greater volatility in EBIT (Kose John, 2008), while such fluctuations will be low for firms with low business risk. The ability to understand and identify risk will enable firms to react more confidently when making future decisions and provide them with a range of options for dealing with potential problems.

The main economic consequence that the firms will face in case there is a high level of risk-taking is higher efficiency of fund allocation (Kreiser et al., 2002); therefore, as most firms have limited capital to make investment decisions in projects, more effective fund allocation may contribute to the development of InvEFF. However, personal great reward for investment may be a key incentive for managers to increase CRT by undertaking risky investment projects. In contrast, managers may aim to protect job position and reputation, thus avoiding investing in a risky investment

project, even if it is a firm value-enhancing project, leading to a reduction firm's risk-taking. The above situations lead to overinvestment and underinvestment problems.

The question is whether the level of CRT affects managers' investment decisions; a higher level of CRT might assist to the identify and implement superior investment projects and, consequently, make the optimal investment decisions. Managers may be more conservative and more risk-averse in their behavior. This internal factor may curb the overinvestment of free cash flow and lead to optimal investment decisions. Additionally, managers may be less likely to exhibit overconfidence and engage in aggressive decision-making. Lower managerial opportunism leads to fewer agency problems, improving the quality of investment decisions and decreasing underinvestment problems. On the other hand, a higher level of CRT may contribute to managers having higher managerial opportunism, leading to higher agency problems and decreasing InvEFF.

The theoretical foundation for restricting InvEFF is the agency issue arising from capital market imperfections, moral hazard, and adverse selection due to information asymmetry (Jeon & Oh, 2017). Companies with high debt may encounter a debt overhang issue due to conflicts between shareholders and creditors. High-leveraged firms may be unable to invest in new investment projects due to risky debt, even if the projects have a positive NPV, resulting in an underinvestment problem. At all events, debt obligation is an essential approach for monitoring managerial behavior, particularly, short-term debt, which is a mechanism that can mitigate information asymmetry and agency costs among all stakeholders. The agency cost of monitoring may be decreased when the firm issues short-term debt, which has an advantageous monitoring effect (Draief & Chouaya, 2022).

Debt maturity can be defined by several indicators, such as type of debt, level of debt, duration of debt instrument, and the proportion of specific types of debt. One of the critical factors affecting debt maturity is managerial discretion (Munoz-Mendoza et al., 2019; Datta et al., 2005). However, depending on its maturity, debt could be beneficial or detrimental to the company (Hatem, 2017; Wahba, 2013). Lowering debt maturity could also enhance the efficiency of capital allocation by lowering over and under investment issues (Gomariz & Ballesta, 2014). Draief and Chouaya (2022) employed the proportion of short-term debt to total assets and debt maturing in more than one year to total assets to determine the debt maturity. Abor (2007a) and Kyereboah-Coleman (2007) measured short debt maturity (short DM) using the proportion of the book value of short-term debt to the book value of total assets. Similarly, long debt maturity (long DM) was measured by the ratio of long-term debt's book value to total assets' book value. Additionally, the proportion of short-term debt over the total debt (STD/TD) was used as a proxy for measuring debt maturity (Gomariz & Ballesta, 2014; Hsb & Patrisia, 2020; Herzallah & Tariq, 2021).

Moreover, Childs et al. (2005) observed that while short-term debt can mitigate debt overhang issues, this advantage must be weighed against the liquidity risk. The issuance of short-term debt enables firms to frequently reprice debt contracts, thereby diminishing both underinvestment and overinvestment issues. Additionally, Johnson (2003) posited that short-term debt can address underinvestment problems. Overinvestment is the main worry of creditors since it enables management to expropriate creditors and minority shareholders; this inefficiency may be mitigated by using shorter maturities (Gomariz & Ballesta, 2014). Finally, Jeon and Oh (2017) revealed a significant positive relationship between debt maturity and InvEFF. This suggests that the shorter the debt maturity, the higher the InvEFF.

The preceding discussion raises an empirical question: What is the impact of CG mechanisms on the efficiency of capital allocation when the level of debt is high? The debt level may motivate the management to apply more creativity, inventiveness, and efficiency. Moreover, with a high proportion of debt in the capital structure, management is motivated to survive and, therefore, inclined to make decisions opportunistically. Furthermore, obligations and default risk will all enhance as debt financing increases. In this situation, Managers experience higher benefits and risks when expanding the corporate governance practices. The greater risks motivate managers to enhance their InvEFF (Lei & Chen, 2019).

Further, the preceding discussion on the impact of debt maturity raises another empirical question: whether debt maturity will affect the effectiveness of CRT on InvEFF. The financial structure with a high amount of short-term debt may contribute to the stronger effectiveness of CRT on InvEFF. As high levels of short-term debt represent firms' short-term financial obligations (Dadush et al., 2000), as well as the higher level of CRT may contribute to changes in investment managers' behavior (Peng, 2015), for example: analyzing investment projects with judgment and make more prudent investment decisions (Naz et al., 2016). A higher short-term obligation and a high volatility of return from operation may lower the chance of managers overinvesting just for personal benefit (Hong et al., 2023) or reduce the potential of underinvestment dimensions by rejecting risky projects but positive NPV. It indicates that management decisions lead to the optimal investment level and InvEFF.

The level of CRT and short-term debt may serve as strong predictors of business and financial risks, respectively (Younas & Zafar, 2019). To avoid an excessively high total risk, the level of financial risk in a firm with a high CRT (i.e.,

high business risk) should generally be relatively low. Therefore, if short-term debt and CRT levels are high, this circumstance—combined with an agency conflict—could force managers to make investment decisions centered on maintaining their reputations and protecting their jobs, resulting in the avoidance of risky investments even if the project would increase firm value. Underinvestment problems can occur, indicating that debt maturity may reduce the effectiveness of CRT on InvEFF.

Listed companies in the Stock Exchange of Thailand (SET) continue to attract investors' attention, as evidenced by the fact that in the first ten months of 2022, SET-listed companies had an initial public offering (IPO) that ranked No. 1 in ASEAN for four consecutive years and was second highest in Asia after South Korea, and also the most liquid stock exchange among ASEAN stock exchanges (Pititawatchai, 2021) and that foreign investors account for approximately 37% of total investors in the Thai stock market (The Stock Exchange of Thailand, 2021). This data demonstrates the attractiveness of investment opportunities for investors. Thailand's proportion of total investment to GDP, which has remained low for several years, an increase in the savings-investment gap, a change in corporate investment decision behavior, and rising in the net saving to GDP ratio can very well reflect the problem of inefficient investment of the Thai private sector. Moreover, the remarkable result of the corporate governance practice assessment, particularly the strong CG practice in all dimensions except board responsibilities, is another crucial explanation for why studies that aim to measure the effect of CG practice on the ability to efficiently resource allocation cannot be ignored.

Based on the preceding discussion about the role of CG mechanisms, whether it is beneficial in terms of firms or in terms of contributing to the development of the

capital market, as well as the importance and role of InvEFF. Suppose financial managers or CEOs, who are essential stakeholders, are aware of and understand the impact of CG on the efficiency of capital allocation. In that case, CG, investment decision-making, and the effectiveness of resource utilization may be improved. All stakeholders may be more aware of the importance of CG and become more focused and efficient monitoring tools that contribute to the overall benefits of the firms. Furthermore, the role of CRT plays in a company's survival further underscores the importance of risk analysis. Especially during economic uncertainty, the ability to understand and identify risk will provide firms with various options for dealing with potential problems and acting more confidently on future business decisions.

Additionally, a review of previous research found several studies aimed at examining the direct impact of CG on InvEFF (Poursoleyman et al., 2021; Lei & Chen, 2019; Jin & Yu, 2017; Alam & Firmansyah, 2019; Azhar et al., 2019) as well as the moderating effect of industry competition (Bimo et al., 2021), which is an external factor that may affect this relationship, and an internal factor such as debt boundary or debt maturity. Along with the previous studies's recommendations for additional investigation, there are other important moderating variables to consider, such as environmental uncertainty, investor protection, and political connection. One consistent with the Thai business context is debt maturity, which can be calculated using a difference proxy.

A review of past research also reveals that the studies of the association between risk dimension and investment efficiency are concentrated solely on risk disclosure (Li et al., 2019; Khan et al., 2022; Ibrahim & Ibrahim, 2021; Smith K., 2018; Fasihi et al., 2019). Direct effect studies between CRT and InvEFF are extremely

limited. It is obvious that short-term debt is an obligation that firms must meet in a short period (García-Teruel & Martínez-Solano, 2007), and it comes with various benefits and drawbacks (Prudential Private Capital, 2019). Short-term debt has benefits such as maintaining cash flow, balancing seasonal demands, and handling emergencies. However, it also has drawbacks, such as perceptions of weak financial health from investors, negative credit risk assessments, insufficient long-term goals, and a burden on day-to-day operations (Lending Stream, 2023). A substantial portion of short-term loans may lead to a disruption in the degree to which CG principles are implemented in firms and a movement in the relationship between CG and the efficiency of capital allocation. Furthermore, a high level of short-term debt may cause changes in the magnitude of the association between CRT and InvEFF. Studies examining the interaction effect of DM on the association of CG, CRT, and InvEFF have generally received limited attention.

Therefore, by emphasizing the significance of InvEFF in the context of developing countries, especially Thailand, this study contributes to the body of knowledge. InvEFF has not received enough attention despite its significant contribution to increasing firm value and improving firm resource allocation, particularly in terms of how it interacts with CG and CRT under varying levels of DM. By examining these relationships and emphasizing the moderating role of DM, this study aims to fill the empirical and theoretical gaps in the literature and advance the understanding of how firms in developing economies can improve the efficiency of capital allocation to enhance long-term value creation and sustainable growth.

1.2 Problem Statement

The current situation regarding InvEFF, the CG practice, distinctive characteristics of debt financing, and the volatility of performance faced by Thai firms are the rationales behind the choice of study, which can be described as follows:

1.2.1 Suboptimal Corporate Investment

Low investment in Thailand over the last decade has been a factor in the country's slower economic development compared to other regional countries. Thailand's total investment, both public and private, accounted for an average of only 24.20 percent of GDP during 2010-2022, as shown in Figure 1.1. Thailand's overall investment value has dropped as a result of declining investments in machinery and equipment, particularly in the construction industry (Monetary Policy Department, Bank of Thailand, 2020), consistent with Wongwaisiriwat and Ronaparp (2020), over the last 20 years, Thailand's investments have recovered in an L-shape, lower than those of countries with comparable economic structures, about 5% of GDP.

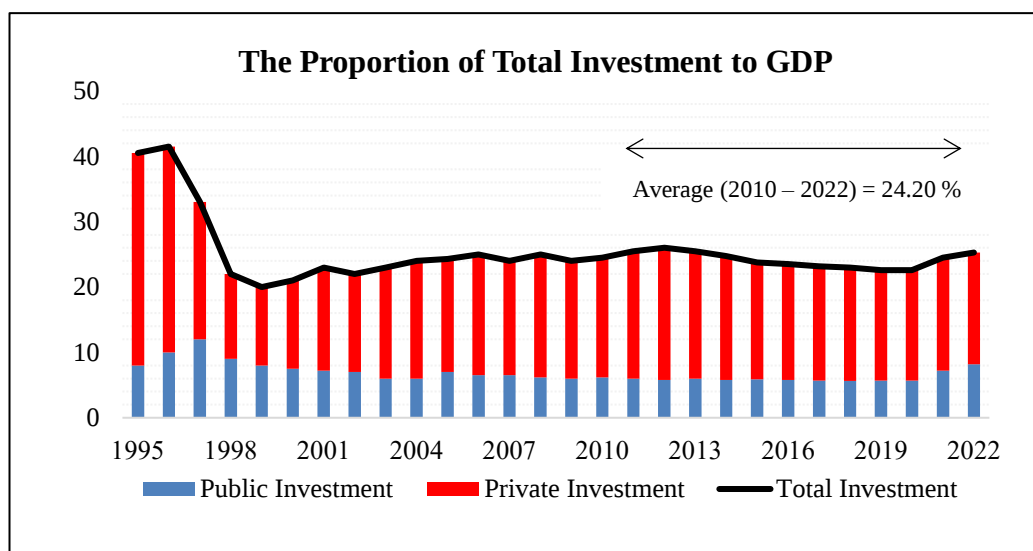


Figure 1.1 The Proportion of Total Investment to GDP
Source: Office of the National Economics and Social Development Council (2021)

After 2014, Thailand's proportion of investment to GDP tended to decline, resulting in a savings-investment gap. The private sector is Thailand's main factor

contributing to the widening savings-investment gap. The private sector's investing behavior has changed. The increased profits will be reinvested less than in the past. The business sector needs more incentive to invest, resulting in a decrease in competitiveness. Instead of capital expenditures, business earnings are invested in securities that provide more short-term returns (Leepaisalsuwanna et al., 2020).

The Bank of Thailand (2020) and the Fiscal Policy Office (2022) highlight that over the past decade, the business sector has made a significant contribution to national savings, as reflected in the rising net saving-to-GDP ratio. While the government's ratio declined from -0.70% (2010–2013) to -1.25% (2018–2021), due to increased infrastructure investment, the business sector's ratio rose from -2.30% to 5.27% over the same periods. This suggests that firms retained more earnings but reinvested less, indicating a decline in fund allocation toward productive projects.

Thailand's economy and business sector face ongoing challenges from underinvestment and uncertainty, which may hinder long-term economic sustainability if these concerns are not adequately addressed. A key factor in overcoming the middle-income trap is raising the investment-to-GDP ratio to 25.4–27.0% by 2035 (Bank of Thailand, 2020). Sustained growth in private investment and improved resource allocation efficiency are essential. Enhancing investment efficiency not only boosts shareholder value through greater competitiveness but also supports innovation, skill development, and sustainable national progress.

In conclusion, Thailand's proportion of total investment to GDP has remained relatively low for several years. An increase in the savings-investment gap, and a change in corporate investment behaviour can indicate inefficient corporate

investment. Additionally, economic uncertainties and the pandemic crisis will unavoidably affect the corporate investment decisions of Thai listed companies.

In this study, InvEFF refers to allocating a firm's resources to investment projects. An investment is considered efficient if it is optimal for a firm, avoiding overinvestment and underinvestment.

1.2.2 Corporate Governance Practices in Thailand

The Thai Institute of Directors Association (Thai IOD), supported by the Stock Exchange of Thailand, has assessed the corporate governance (CG) practices of Thai listed companies since 2001. The assessment covers five categories: shareholder rights, equitable treatment of shareholders, stakeholder roles, disclosure and transparency, and board responsibilities. Annual CG Reports categorize firms based on overall CG scores. Ratings range from “excellent” (90–100) to “not applicable” (below 50). The number of assessed firms rose from 513 in 2012 to 750 in 2022, reflecting growing attention to CG practices. The average score increased from 77% (“good”) in 2012 to 80% (“very good”) in 2017, indicating steady progress (Thai IOD, 2022). Stakeholder scores improved significantly from 65% in 2012 to 84% in 2021, reflecting a global shift toward stakeholder-oriented governance. Conversely, board responsibility remained the weakest area, scoring below 70% between 2012 and 2016 and consistently lagging behind other categories.

The improvements in Thai firms' CG practices align with the World Bank (2013), which recognized Thailand as a regional leader in corporate governance among Asian and emerging economies. The strong performance across most CG dimensions—except board responsibilities—raises important questions about the impact of CG practices on firms' resource allocation and investment efficiency.

CG practices in Thailand share similarities with those in other developing countries but also have distinctive features shaped by Thailand's unique institutional, regulatory, and cultural contexts. In terms of regulation and enforcement, Thailand has made considerable progress since the 1997 Asian financial crisis by establishing stronger CG frameworks such as the Thai CG Code. Regarding board structure and ownership, Thai firms commonly exhibit high ownership concentration, frequently controlled by families, a typical pattern in emerging markets that can lead to potential conflicts between controlling and minority shareholders. Nevertheless, Thailand has taken steps to improve CG quality by promoting the appointment of independent directors and the formation of board committees, aiming to reduce such conflicts and align with international best practices. Additionally, Thailand is comparatively advanced in integrating ESG principles into CG practices, exemplified by initiatives such as the Thailand Sustainability Investment (THSI) index.

1.2.3 Earnings Volatility and Business Risk in Thai Firms

In financial literature, volatility is commonly used as a proxy for risk, with high performance volatility indicating elevated risk levels. Over the past 12 years, Thai listed firms have faced various risk factors—including natural disasters, economic uncertainty, digital disruption, and pandemics—that have had widespread impacts.

Table 1.2 shows the annual average returns on assets (ROA) and returns on equity (ROE) of Thai publicly traded firms. The average ROE over the last 12 years was 4.97%, with ROE volatility at 7.81, while the average ROA over the same period was 9.11%, with ROA volatility at 31.30, compared to the earning volatility of Thai listed companies during 2001 – 2009, whose volatility in ROE and ROA were 1.03 and 19.48 respectively (SETSMART Database, 2022). The increase in earnings volatility, particularly the volatility of ROA, indicates that operating risks for Thai-

listed firms have grown over the past ten years. High-risk, high-CRT may impact future corporate investment decisions (Peng, 2015; Alhamshary et al., 2022).

1.2.4 Debt Dependence, Bond Market Exposure, and Interest Rate Challenges in Thailand

Although the Thai capital market continues to evolve with the increasing number of new listed companies and new share issuances, debt financing remains the primary financing approach. Firms in the Thai economy rely on the debt market. The primary source of funding for small and medium-sized enterprises (SMEs) and Thai listed firms is bank loans (Ramcharan, 2017). The average D/E ratio during the previous 12 years, from 2010 to 2021, is shown in Table 1.1. A relatively high D/E ratio was observed during 2010-2013 at 2.03 and during 2014-2017 at 1.54. Although this ratio dropped to 1.42 during 2018-2021, the average D/E ratio over the past 12 years was 1.66 times. As of the end of 2022, Thai-listed companies had an average D/E ratio of 1.59 times (The Standard, 2023). Additionally, the value of new bond issuance increased by 21% throughout the first eight months of 2022, with a total value of approximately 9.5 hundred billion baht (Economic Intelligence Center, 2022), which is 1.7 times higher than maturing debt securities (Bank of Thailand, 2023).

Table 1.1 Average historical Debt to Equity Ratio and Profitability Ratio of Thai Listed companies between 2010 – 2021.

Year	D/E Ratio (times)	ROE (%)	ROA (%)
2010 - 2013	2.03	4.44	13.42
2014 - 2017	1.54	6.35	8.81
2018 - 2021	1.42	4.12	5.10
Average	1.66	4.97	9.11
Volatility	0.12	7.81	31.30

Source: SETSMART Database (2022) and Researcher's own calculation

The information above not only shows the demand for fundraising through debt financing, but also reveals the financing behavior of Thai firms. Rising interest rates may increase the cost of funds. The higher the burden of interest payments, the higher the risk of default. Therefore, rising interest rates worldwide, including in Thailand, will increase the risk to firms' financial positions. Financial pressure is typically greater for highly leveraged companies (Kalash, 2023). Obligations from debt financing will limit agency cash flow inefficiently, lower excess free cash flow, and reduce opportunistic behavior when utilizing agency resources. Resource allocation behavior is expected to change as debt levels increase, so debt financing is predicted to influence the efficiency with which resources are allocated for investment.

The preference for STD over LTD is frequently observed among Thai firms due to its greater flexibility and lower cost. However, this financing approach carries crucial risks. Firms relying heavily on STD are more vulnerable to refinancing risks, liquidity constraints, and interest rate volatility, especially in periods of economic instability. Such risks may disrupt long-term investment plans and reduce the efficiency of capital allocation. Empirical studies (Valenzuela, 2016; Al-Najjar & Kilincarslan, 2019; Johnson, 2003; Jeon & Oh, 2017; Gomariz & Ballesta, 2014; Diamond & He, 2014) have shown that excessive short-term debt usage can affect the efficiency of investment decisions, particularly in markets with weak creditor protection and underdeveloped long-term financing instruments. In Thailand, where firms face structural limitations in accessing long-term debt, the use of STD may further amplify agency problems and promote excessive risk-taking. Therefore, distinguishing between STD and LTD is crucial in understanding how DM interacts with CG and CRT to affect InvEFF.

In addition to the current situation regarding the level of improper investment in the Thai private sector, the improvement in CG practice of Thai firms, the earning volatility which reflects CRT, and the degree of dependence on debt financing of Thai firms, it also has unfulfilled considerable research gap that is considered as the fundamental motivation of this research, particularly concerning CG and InvEFF, which makes this research novelty and can significantly enrich the literature.

Growing academic study over the last several years has highlighted the significance of InvEFF. Studies have shown that good CG practices have resulted in considerable change in firm performance (Pham et al., 2007; Haniffa & Hudaib, 2006; Sheikh & Karim, 2015; Klein et al., 2005; Olaleke et al., 2014; Fadun, 2017; Saha et al., 2018; Niyomtrong, 2007; Techapichaya, 2007; Hansawang, 2017), decreased risk of systemic financial crises (Iqbal et al., 2015; Wang, 2016), and enhanced earning quality (Cherkasova & Rasadi, 2017; Istianingsih, 2021; Salehi & Asgari, 2013; Raposa & Christina, 2014). Moreover, most previous CG studies are based on a narrow measure of governance, which aims to measure single aspects of CG practice, such as shareholder rights, board structure and role, disclosure, and transparency. Each dimension of CG is considered complementary and acts interchangeably in reflecting overall levels of CG practice. For example, a firm with relatively low levels of transparency may compensate by having a higher proportion of outside directors on the board. Failure to control other aspects of CG leads to a biased interpretation of the effect of the overall CG practices. Studies on the effectiveness of CG on investment efficiency are limited, particularly in Thailand, while InvEFF is a very crucial concern in emerging markets and in companies that often have issues of ownership structure.

Therefore, this research casts new light on three perspectives: (1) measuring CG mechanisms using the CG score by Refinitiv Eikon Datastream. This data covers three crucial CG practice areas: CSR strategy, management, and shareholders, (2) focusing on the effect of CG practices and CRT on corporate InvEFF rather than firm performances, which is a topic that remains unexplored in the existing literature; lastly, (3) examining the interaction role of debt maturity on the effectiveness of CG practices on InvEFF, including the interaction role of debt maturity on the effectiveness of CRT on InvEFF, which is quite scarce and counts as a novelty of this research.

1.3 Research Questions

1. Do the corporate governance mechanisms influence the investment efficiency of companies listed on the Stock Exchange of Thailand?
2. Does corporate risk-taking influence the investment efficiency of companies listed on the Stock Exchange of Thailand?
3. Does debt maturity affect the relationship between corporate governance mechanisms and the investment efficiency of companies listed on the Stock Exchange of Thailand?
4. Does debt maturity affect the relationship between corporate risk-taking and investment efficiency of companies listed on the Stock Exchange of Thailand??

1.4 Research Objectives

1. To investigate the influence of corporate governance mechanisms on the investment efficiency of listed companies in the Stock Exchange of Thailand.
2. To evaluate the influence of corporate risk-taking on the investment efficiency of listed companies in the Stock Exchange of Thailand.

3. To determine the impact of debt maturity on the relationship between corporate governance mechanisms and investment efficiency of listed companies in the Stock Exchange of Thailand.

4. To identify the impact of debt maturity on the relationship between corporate risk-taking and investment efficiency of listed companies in the Stock Exchange of Thailand.

1.5 Significance of Study

This research aims to analyze the effectiveness of CG mechanisms and CRT on the InvEFF of companies listed in the Stock Exchange of Thailand. Additionally, this research investigates how debt maturity influences the association of CG mechanisms and CRT on InvEFF. The expected contributions of this research are divided into three perspectives.

1.5.1 Theoretical Contribution

Most prior studies on CG have primarily focused on its impact on firm performance, using accounting- or market-based measures. However, limited research has explored the influence of CG on InvEFF, which is a crucial yet under-researched aspect of firm behavior. This study addresses this gap by examining how different CG mechanisms affect InvEFF, offering a theoretical extension beyond performance outcomes. This research is grounded in agency theory, which explains how effective CG can reduce agency problems by aligning the interests of managers and shareholders, thereby improving InvEFF. In addition, the moderating role of DM is explored, representing a novel theoretical contribution. By interacting CG mechanisms with DM, this study extends the agency theory framework by examining how debt

structure may function as a tool to discipline management and improve decision-making under conditions of information asymmetry.

1.5.2 Practical Contribution

The findings of this research can be used by listed companies in Thailand's capital market to create effective CG policies and control InvEFF factors. In addition, managers may utilize the findings as a guideline to adjust their financial behavior, particularly their investing behavior, to prepare for future crises. Moreover, the study's results will be valuable to policymakers, such as the Stock Exchange of Thailand (SET), because the capital market is essential in improving CG standards. Thus, if the regulatory recognizes the effectiveness of CG and other factors influencing InvEFF, it could be possible to design policies that encourage firms to apply CG more widely and drive the long-term growth of the Thai capital market.

1.5.3 Methodological Contribution

Most prior CG investigations are based on a narrow measure of governance, which aims to measure single aspects of CG practice. This research casts new light on CG using the CG score, a part of ESG Scores by Refinitiv Eikon Datastream. Not only was the overall CG score used to test, but the three crucial CG practice areas, namely, CSR strategy, management, and shareholders, were also used for investigation. More importantly, the study's sample selection process made a significant methodological contribution by aiming to study listed companies in the entire market. This process effectively reflected Thai firms' corporate governance practices, leading to balanced and reliable study results.

1.6 Definition of Key Terms

1.6.1 Corporate governance mechanisms

CG mechanisms are defined as the rules, practices, and processes by which a firm is controlled and directed (The Stock Exchange of Thailand, 2017). CG encompasses every management aspect (OECD, 2014). CG mechanisms for this research refer to the overall CG score (CG), the CSR strategy score (CSR), the management score (MGT), and the shareholders score (SHR). The CG score comprehensively evaluates a company's performance in terms of governance practices. The CSR score reflects a company's practices to communicate its integration of economic, social, and environmental dimensions into its daily decision-making process. The MGT score measures a company's commitment and effectiveness towards CG principles. Lastly, the SHR score evaluates how effectively a business applies anti-takeover mechanisms and manages shareholders equally.

1.6.2 Corporate risk-taking

CRT is the variation level associated with cash flow and expected outcomes due to new investments (Shleifer & Vishny, 1996). CRT is often measured by the variation in corporate earnings. Higher CRT indicates that firms invest in riskier but value-adding investment projects, which will improve growth opportunities.

1.6.3 Investment efficiency

InvEFF refers to the level of investment that does not deviate from the optimal level. The level of overinvestment and underinvestment is used to measure the level of investment efficiency (Biddle et al., 2009). A low level of overinvestment or underinvestment demonstrates a high level of InvEFF.

1.6.4 Overinvestment

Overinvestment is an investment that exceeds the appropriate investment level. Overinvestment arises when a project with a negative NPV is undertaken (Biddle et al., 2009). Excess internal cash flow, accompanied by weak governance and a lack of effective monitoring mechanisms, frequently leads to overinvestment problems.

1.6.5 Underinvestment

Underinvestment is the level of investment that is less than the optimal level and typically occurs when a project with a positive NPV is neglected (Li & Wang, 2010). Underinvestment problems can be considered a value-distorting activity because the firm cannot fulfill market demand, loses competitiveness and market share, and misses opportunities for returns and growth.

1.6.6 Debt maturity

Debt maturity is commonly measured by the ratio of some type of debt to total debt, such as the ratio of short-term debt to total debt and the ratio of long-term debt to total debt. A high ratio can indicate debt maturity differently depending on measurement factors. This research will measure debt maturity (DM) by using the level of short-term debt over total debt (SDTD). SDTD is an inverse measure of debt maturity. A high value of SDTD indicates a short debt maturity. Similarly, a low ratio of SDTD indicates a long debt maturity.

1.7 Organization of the Study

The overall outline, as well as the organizational pattern of this thesis, are discussed in this section. The thesis comprises five chapters, and a brief overview of each chapter is presented as follows.

Chapter 1 describes the research background and the problem statement. Then, the research question and research objectives are stated. Finally, the chapter identifies the expected contributions from the study. Chapter 2 provides details of agency theory, which is relevant in explaining the effectiveness of CG on the efficiency of investment allocation. InvEFF, CG mechanisms, CRT, and debt maturity are discussed in this section. This chapter additionally discusses the empirical studies related to CG mechanisms and InvEFF, CRT and InvEFF, debt Maturity and the relationship between CG mechanisms and InvEFF, debt maturity and the relationship between CRT and InvEFF. Lastly, research hypotheses are conceptually developed and prepared for the empirical tests in the next chapter. Chapter 3 presents research methodology. This chapter provides information on the scope of the research, data and sample, measurement of each variable, and the regression models. The research methods are given to answer the research questions. Chapter 4 shows the results of the analysis. The analysis starts with descriptive statistics. Then, the hypothesis of the relationship between CG mechanisms, CRT, and InvEFF can be tested using an inferential statistic test. Lastly, the interaction effect of debt maturity on the relationship between CG mechanisms, CRT, and InvEFF will be shown. Chapter 5 provides a summary and discusses the findings of hypothesis testing. This chapter will discuss and synthesize the overall findings to consolidate the answers to the research questions and objectives, which follow the research implications for researchers and practitioners. Detailed contributions to the theory and the body of knowledge will be addressed. As directed by the research findings and background, future potential research directions will be recommended. Finally, the limitations of this research will be mentioned.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides the theoretical underpinnings of the study by reviewing related theories and concepts such as agency theory, information asymmetries theory, CG, CRT, debt maturity, and InvEFF. Additionally, relevant literature on CG and InvEFF, CRT and InvEFF, and the effect of debt maturity are explored. The subsequent sections of the chapter are organized as follows: Section 2.2 begins with the two main underpinning theories in corporate governance literature: agency theory and information asymmetries theory. Sections 2.3 – 2.6 present vital concepts relevant to the study, including CG, CRT, debt maturity, and InvEFF. Section 2.7 describes the empirical studies and hypothesis development. The research framework, including the research hypotheses and predicted results, are presented in Sections 2.8 and 2.9, respectively. Section 2.10 summarizes and concludes the chapter.

2.2 Underpinning Theories

This section presents the two main underpinning theories in CG study. Agency theory is a fundamental principle underpinning CG. Another theory combined in this research and used to propose the theoretical framework is the information asymmetries theory.

2.2.1 Agency Theory

Agency theory is basically one essential issue in organizational theory since it relates to aspects of the practice of control in enterprises. Agency theory evolved as a result of the ownership separation to the corporate executives, particularly in large modern enterprises. This theory describes the relationship between business owners and