THE EFFECT OF EARNINGS MANAGEMENT ON COST OF DEBT IN LISTED COMPANY AT MAI MARKET

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A Thematic Paper Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Accountancy Program
College of Innovative Business and Accountancy, Dhurakij Pundit University
2021

ใบรับรองสารนิพนธ์

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หัวข้อสารนิพนธ์   THE EFFECT OF EARNINGS MANAGEMENT ON COST OF DEBT

IN LISTED COMPANY AT MAI MARKET

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สาขาวิชา   บัญชีมหาบัณฑิต

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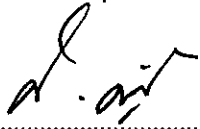
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(ผศ.ดร.ศิริเดช คำสุพรหม)

วันที่ 13 เดือน ก.ค. พ.ศ. 2564

Thematic Paper Title	The Effect of Earnings Management on Cost of Debt in Listed Company at MAI Market
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Department	Accountancy
Academic Year	2020

ABSTRACT

This study paper aims to examine the effect of earnings management on the cost of debt using a sample of Thai listed companies in the MAI market during the selected period from 2018 to 2020. Detecting of earnings management is accrual earnings management from the performance-adjusted discretionary model proposed by Kothari et al. (2005), and measurement of cost of debt is interest expense for the year divided by total liability throughout the year (Farooq and Jabbouri, 2015). The finding indicates that earnings management of Thai listed companies in the MAI market has no influence on the cost of debt. The paper also finds that the audit quality of the Big 4 Auditors leads to lower cost of debt, and larger firm size leads to higher cost of debt.

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Chapter 1

Introduction

1.1. Background to the Paper

Financial reporting quality is important to shareholders, investors and creditors when making decisions. Orazalin and Akhmetzhanov (2019) raised some important events in 2011 of emerging market companies in their paper. Several Chinese companies were delisted from the US stock exchange markets because of their questionable financial reporting practices, and some Russian and Chinese companies withdrew their applications for listing in the US market because of strict reporting requirements and high information demands from investors. Additionally, large audit firms have also assured the credibility of accounting information provided by companies operating in emerging economies (Li et al., 2014). Therefore, financial information quality is a primary factor in attracting shareholders or investors to invest their funds in the firms, and also in convincing creditors to allow a lower cost of debt. Carmo et al. (2016) claim that earnings management plays an important role in assessing a firm's credit rating and determining its cost of debt.

The main purpose of this study aims to examine the effect of earning management on cost of debt in listed companies in the MAI market. The study's motivation comes from the reason of having limited studies of earnings management in the MAI market because most of earnings management's research papers in Thailand have simple sizes based on the SET market rather than the MAI market.

1.2. Research Problem

Earnings management is an issue that has received more attention from researchers in other countries. Nardi and Nakao (2009) found a positive relationship between earnings management and cost of debt for publicly traded Brazilian companies. Houqe et al. (2017) studied the effect of earnings management on the cost

of capital for the Indian market and revealed that groups of companies with lower earnings management have a lower cost of capital than stand-alone companies. Orazalin and Akhmetzhanov (2019) found that earnings management is negatively related to cost of debt from a sample of all public companies listed in Kazakhstan from 2010 to 2016. Therefore, the research question for this paper is whether earnings management shows a positive or negative effect on cost of debt from a sample of listed companies in the MAI market.

1.3. Research Objective

By the end of the paper, participators will be able to:

1. Identify the research variable of the study.
2. Identify the effect of earning management on cost of debt in listed companies in the MAI market.

1.4. Conceptual Framework
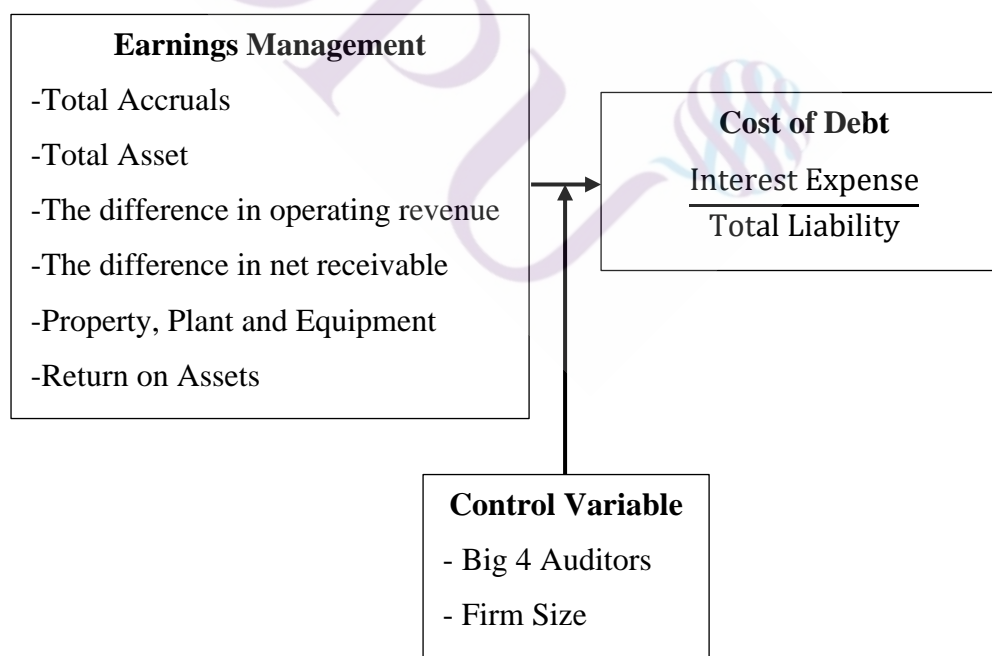
Picture 1.1. Conceptual Framework

1.5. Study Hypotheses

As stated in the conceptual framework, there are 3 hypotheses to test in the study.

H1: Higher earning management of listed companies in the MAI leads to a higher cost of debt.

H2: The quality of the Big 4 Auditors leads to a lower cost of debt of listed companies in the MAI.

H3: A larger organization size leads to a higher cost of debt for listed companies in the MAI.

1.6. Scope and Limitation

Annual financial statements of listed companies in the MAI market from around 2018 to 2020 are used as secondary data to investigate the study's hypotheses. According to the conceptual framework, the research variable is categorized as follows:

1. Independent Variable – Earnings management: Measured by the performance-adjusted discretionary model proposed by Kothari et al. (2005).
2. Dependent Variable – Cost of Debt: Calculated by interest expense for the year divided by total liabilities for the year.
3. Control Variable

Big 4 Auditors: Standing as an indicator of audit quality, measured by a dummy variable that takes a value of one if financial statements of the company are audited by the Big 4 auditors.

Firm Size: Measured by estimating the natural log of total assets.

1.7. Benefit Expectation

This paper will serve as knowledge to investors, business owners, or other related participators interested in this area of research. Moreover, it may be used as a guideline to other researchers who wish to study the effect of earnings management on cost of debt in other countries or listed companies in other markets.

1.8. Terminology

Big 4 Auditors is an indicator of audit quality based on the four largest accounting firms: Deloitte, Ernst & Young (EY), PricewaterhouseCoopers (PwC), and Klynveld Peat Marwick Goerdeler (KPMG).

Cost of Debt is the cost of interest debt such as bonds and loans that business owners are required to pay to creditors.

Earnings Management is an accounting technique used to manage earnings in financial statements by management.

Firm Size is a scale or volume of a single industry that ranges through larger and smaller firms.

Listed companies at the MAI market are public limited companies that register at The Securities and Exchange Commission of Thailand in qualification for the Market for Alternative Investment (MAI).

Chapter 2
Literature Review

The author has explored relevant theoretical findings and definitions of research variables to study the effect of earnings management on cost of debt in listed companies in the MAI market. Furthermore, results of prior studies are added to be used as data for analysis in the paper. The section of this chapter consists of:

2.1. Research Variables

2.1.1. Earnings Management

2.1.2. Cost of Debt

2.1.3. Control Variables

2.2. Relevant theoretical findings

2.2.1. Agency Theory

2.2.2. Signal Theory

2.3. Results of Previous Studies

2.3.1. Earnings Management

2.3.2. Cost of Debt

2.1. Research Variables

The classification of research variables is divided into 3 categories. First is cost of debt to stand as a dependent variable, second is earnings management to stand as an independent variable and third is the control variable consisting of the Big 4 auditors and the company's firm size. The next section includes definitions of each research variable and relevant theory related to the research variable.

2.1.1. Earnings Management

Many researchers define earnings management differently. A study by Davidson, Stickney and Weil in 1987 defines earnings management as the process of taking deliberate steps within the constraints of generally accepted accounting principles to bring about a desired level of reported earnings (cited in Schipper, 1989).

Similarly, Schipper (1989) defines earnings management as a purposeful intervention in the external financial reporting process with the intent of obtaining private gain. Additionally, Healy and Wahlen (1999) argue that earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers. By reading those definitions, earnings management is an action by management that relates to the amount of financial reporting in order to meet the desire of financial reporters.

2.1.1.1. Incentive of earnings management

There have been numerous reasons to motivate for occurring earnings management. Healy and Wahlen (1999) arose two critical research design issues for earnings management incentives. First, researchers have to identify managers' reporting incentives such as capital market expectations and valuation; contracts written in terms of accounting numbers, and antitrust or other government regulations. Second, researchers have to measure the effects of managers' use of accounting discretion in unexpected accruals or accounting method choices, however, Healy and Wahlen explained that unexpected accruals are the unexplained component. Thus, this paper mentions only the first critical research design issues.

1. Capital Market Motivations

There are four parts of capital market motivations related to earnings management. First is evidence on whether earnings management appears to occur for stock market reasons. The second is which specific accruals appear to be used for earnings management. The third is evidence of the magnitude and frequency of stock market motivated earnings management. Last is the review of whether earnings management for stock market purposes affects resource allocation.

Do firms manage earnings for stock market purposes?

A prior study from Burgstahler and Eames (1998) argues that earnings management occurs to meet analysts' forecasts that take actions by managers in order to avoid reporting earnings lower than analysts' expectations. Additionally, Abarbanell and Lehavy (2003) use financial analysts' stock recommendations to predict the direction of earnings management, and the findings showed firms that receive buy

recommendations are more likely to manage earnings to meet analysts' earnings expectations, while firms that receive sell recommendations are more likely to show negative unexpected accruals. Based on those prior studies, stock prices can assume the level usage of earnings management. These are the evidence of earnings management related to the stock market.

Which specific accruals are managed?

There has been little research on the choice of specific accruals as a proxy of earnings management. Many of them use unexpected accruals. Teoh, Wong, and Rao (1998) find that initial public offering firms use depreciation policies and bad debt allowances to increase income. On the other hand, banking and insurance companies also involve specific accruals used to manage earnings. The following studies that find earnings management involve banks are Beaver et al. (1989), Moyer (1990), Scholes et al. (1990), Wahlen (1994), Beatty et al. (1995), Collins et al. (1995), Beaver and Engel (1996), Liu and Ryan (1995) and Liu et al. (1997). Furthermore, studies that claim earnings management involve insurers are Petroni (1992), Beaver and McNichols (1998), Penalva (1998), and Petroni et al. (2000). Besides these, deferred tax is also the specific accrual used to examine earnings management. Visvanathan (1998), Miller and Skinner (1998), and Ayers (1998) conclude that there is little evidence that managers misuse reporting judgment relating to the valuation reserved to manage earnings.

What is the magnitude and frequency of stock-based earnings management?

Teoh, Wong, and Rao (1998) argue that 62 percent of firms making initial public offerings have higher unexpected accruals than a matched sample of control firms, and median unexpected accruals in the offering year are 4 to 5 percent of assets. Erickson and Wang (1999) also declare that unexpected accruals are 2 percent of assets in the quarter of stock acquisition. These numbers represent 25 to 50 percent of typical asset returns. The evidence on the magnitude or frequency of earnings management for capital market purposes has a small study pool. The sample firms used to detect earnings management in many studies is in initial public offerings, and the frequency of earnings management for this sample does not necessarily indicate the overall frequency of earnings management for other capital market reasons.

Does stock-based earnings management affect resource allocation?

Suggested by experimental evidence on the stock market effect of earnings numbers, analysts are more likely to detect earnings management when financial statements clearly display the balances and activity of the managed item. Hirst and Hopkins (1998) find that a clear display of the components of comprehensive income enhances analysts' detection of earnings management and improves their valuation relative to footnote disclosure. As a result, earnings management may be less likely to affect resource allocation when financial reports make it more transparent.

2. Contracting Motivations

The incentive of earnings management occurs from contracting motivations created by two elements. These are lending contracts and management compensation contracts.

Lending Contracts

Healy and Palepu (1990), DeAngelo et al. (1994) and Holthausen (1981) conclude that there is little evidence of earnings management among firms close to their dividend covenant. Firms in financial difficulty can reduce their dividend payments when they meet a necessary covenant such as restrictions on interest coverage or debt-equity ratios. Thus, earnings management can be occurred by firms that are close to their lending covenants.

Management Compensation Contracts

The evidence of studies that examined actual compensation contracts to identify managers' earnings management incentives show that managers use accounting judgment to increase earnings in order to get bonus awards. Guidry et al. (1999) found that divisional managers for large multinational firms are likely to defer income when the earnings target does not meet the level of bonus awards. Moreover, Healy (1985) and Holthausen et al. (1995) show that firms with caps on bonus awards are more likely to report accruals that defer income than firms that have no bonus cap.

3. Regulatory Motivations

The literature review of earnings management relates to regulatory motivations that have two forms of regulations. These are industry-specific regulations and anti-trust regulations.

Industry Regulations

Some industries such as banking, insurance, and utilities face regulatory monitoring that is explicitly tied to accounting data. Thus, it is the incentive to have earnings management in these such industries. Studies show evidence in banks that are close to minimum capital requirements overstating loan loss provisions, understating loan write-offs, and recognizing abnormal realized gains on securities portfolios (Moyer, 1990; Scholes et al., 1990; Beatty et al., 1995; Collins et al., 1995). Additionally, evidence also shows that financially weak property-casualty insurers that risk regulatory attention understate claim loss reserves (Petroni, 1992) and engage in reinsurance transactions (Adiel, 1996).

Anti-Trust and Other Regulations

Watts and Zimmerman (1978) claim that managers of firms vulnerable to an antitrust investigation or other adverse political consequences have incentives to manage earnings to appear less profitable. The evidence papers have examined whether regulatory scrutiny increases the likelihood of earnings management. Cahan's (1992) study from a sample of 48 firms from 1970 to 1983 found that firms under investigation for antitrust violations reported income decreases and abnormal accruals in investigation years. In addition, Jones (1991) also found that firms in industries seeking import relief tend to defer income in the year of application, taken from a sample of 23 industries between 1980 and 1985.

2.1.1.2. Measures of earnings management

There are four methods to measure earnings management. Those methods are discretionary accruals, assets turnover and profits margin diagnosis, earnings management proxies: classification shifting, and earnings management proxies: restatements.

1. Discretionary Accruals

There are many researchers using discretionary accruals to measure earnings management. One example is Healy (1985), Healy's model uses working capital accrual as a measure of accruals, and does not incorporate determinants of nondiscretionary accruals. Another is the 1991 Jones model. Jones (1991) created a model to measure managers' entrenchments after controlling a firm's normal accrual with changes in revenues and property, plants, and equipment. The normal accruals can

be estimated and explained by the number of accruals explained by changes in sales and property, plants, and equipment. Jones states that revenues could be the main driver of current accruals, whereas property, plants, and equipment are the main driver of noncurrent accruals. A third is Dechow and Dichev (2002). They use a different approach to estimate discretionary accruals, and also include determinants of past, present, and future operating cash flow as nondiscretionary. However, Kothari et al. (2005) develop a performance-matched discretionary model to measure earnings management by using return on assets and industry to control the effect on the discretionary accruals because Dechow and Dichev's (2002) model is also questionable (Wysocki, 2009).

2. Assets Turnover and Profits Margin Diagnostic

A model by Dechow et al. (2012) uses asset turnover and profit margin diagnostic as the proxy of earnings management. Jansen et al. (2012) declare that the adjustment in assets turnover or profits margin warrants further investigation in quality of earnings analyses, and research also notes that adjustments in both asset turnover and profit margin could signal earnings management. The theory proves that an increase in profit margin and a decrease in asset turnover can signal upward trends in earnings management. In contrast, a decrease in profit margin and an increase in asset turnover can signal downward trends in earnings management.

3. Earnings Management Proxies: Classification Shifting

Some researchers have used classification shifting to measure earnings management. Haw et al. (2011) found that managers' deliberate misclassification of core expenses as noncore special items on the statement of comprehensive income to create the illusion of an increase in core earnings for investors so as to affect the share performance. Another study of McVay et al. (2006) shows that one of the motivations to shift core expenses to special items is to meet analyst earnings forecasts.

4. Earnings Management Proxies: Restatements

One indicator that engages in earnings management is the existence of restatements and fraud in financial information. The restatements of financial information can be classified into non-intentional errors and intentional irregularities based on the US SEC, lawyers, and auditors (Hennes et al., 2008).

2.1.1.3. Types of earnings management

Works by Schipper (1989) argue that earnings management has two forms that consist of accrual earnings management and real earnings management. Accrual earnings management can use provisions for credit losses (Ahmed, Takeda, and Thomas, 1999; Anandarajan., Hasan., and McCarthy, 2007), warranty costs (Cohen et al., 2011), inventory values, and the timing and amount of unusual items; however, the accrual earnings management may have a reverse effect (Dechow et al, 2012). Another form of earnings management is the use of real variables, which may be costly, to affect the firm's long-term interest. Graham, Harvey, and Rajgopal (2005) find that most respondents would prefer to use real variables to manage earnings.

1. Accrual Earnings Management

Normally, the measurement of discretionary accruals is total accruals which to be decomposed into discretionary and nondiscretionary components. The author selected five popular models that generally represent the studies of earnings management literature.

The Healy Model:

Healy (1985) tests earnings management by comparing mean total accruals (scaled by lagged total assets) across the earnings management partitioning variable.

$$NDA_t = 1/n \; \Sigma_t \; (TA_t \; / \; A_{t-1})$$

Where:

NDA is nondiscretionary accruals scaled by lagged total assets;

TA is total accruals;

A is total assets;

n is the number of years in the estimation period; and

t is a year subscript for years (t-n, t-n+1,…,t-1) included in the estimation period.

The DeAngelo Model:

DeAngelo (1986) tests earnings management by computing first differences accruals, and by assuming that the first differences have an expected value of zero under the hypothesis of no earnings management.

$$NDA_t = TA_{t-1} \; / \; A_{t-2}$$

Where:

NDA is nondiscretionary accruals scaled by lagged total assets;

TA is total accruals;

A is total assets; and

t is a year subscript for years (t-n, t-n+1,…,t-1) included in the estimation period.

The Jones Model:

The Jones Model (Jones, 1991) attempts to account for the effect of changes in a firm's economic circumstances on nondiscretionary accruals.

$$NDA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta REV_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1})$$

Where:

NDA is nondiscretionary accruals scaled by lagged total assets;

A is total assets;

ΔREV is average revenues;

PPE is gross property plant and equipment at the end of the year;

t is a year subscript for years (t-n, t-n+1,…,t-1) included in the estimation period; and

$\alpha_1, \alpha_2, \alpha_3$ are firm-specific parameters.

The modified Jones Model:

The Modified Jones Model is designed to eliminate the conjectured tendency of the Jones Model to measure discretionary accruals with error when discretion is exercised over revenue recognition.

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 [(\Delta REV_t - \Delta REC_t) / A_{t-1}] + \alpha_3 (PPE_t / A_{t-1})$$

Where:

NDA is nondiscretionary accruals scaled by lagged total assets;

A is total assets;

ΔREV is average revenues;

ΔREC is average net receivables;

PPE is gross property plant and equipment at the end of the year;

t is a year subscript for years (t-n, t-n+1,…,t-1) included in the estimation period; and

$\alpha_1, \alpha_2, \alpha_3$ are firm-specific parameters.

The Kothari Model:

Kothari et al. (2005) emphasize that the Jones Model and the Modified Jones Models are misspecified when applied to samples experiencing extreme performance.

Thus, return on assets is included as a variable to modify the Jones Model and the Modified Jones Models.

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 [(\Delta REV_t - \Delta REC_t) / A_{t-1}] + \alpha_3 (PPE_t / A_{t-1}) + \alpha_4 (ROA_t / A_{t-1})$$

Where:

NDA is nondiscretionary accruals scaled by lagged total assets;

A is total assets;

ΔREV is average revenues;

ΔREC is average net receivables;

PPE is gross property plant and equipment at the end of the year;

ROA is the return on assets in the year;

t is a year subscript for years (t-n, t-n+1,…,t-1) included in the estimation period; and

$\alpha_1, \alpha_2, \alpha_3, \alpha_4$ are firm-specific parameters.

2. Real Earnings Management

Based on research by Roychowdhury (2006), real earnings management is achieved primarily by three means which are sales, production, and discretionary expenditure manipulation. These three means can be measured by abnormal operating activities net cash flow, abnormal product cost, and abnormal discretionary expenses respectively.

The Normal Operating Activities Cash Flow:

$$(CFO_{it} / Asset_{i,t-1}) = k_1 (1 / Asset_{i,t-1}) + k_2 (SALES_{it} / Asset_{i,t-1}) + k_3 (\Delta SALES_{it} / Asset_{i,t-1}) + \varepsilon_{it}$$

Where:

CFO_{it} is Cash flow from operating activities of company i in year t;

$Asset_{i,t-1}$ is the total assets of company i in year t-1;

$SALES_{it}$ is the sales of company i in year t; and

$\Delta SALES_{it}$ is the average sales.

The Normal Production Cost:

$$(PROD_{it} / Asset_{i,t-1}) = k_1 (1 / Asset_{i,t-1}) + k_2 (SALES_{it} / Asset_{i,t-1}) + k_3 (\Delta SALES_{it} / Asset_{i,t-1}) + k_4 (\Delta SALES_{i,t-1} / Asset_{i,t-1}) + \varepsilon_{it}$$

Where:

PROD$_{it}$ is the sum of variation of production cost, operation cost, and inventory cost of company i in year t;

Asset$_{i,t-1}$ is the total assets of company i in year t-1;

SALES$_{it}$ is the sales of company i in year t; and

ΔSALES$_{it}$ is the average sales.

The Normal Discretionary Expenses:

$$(DISX_{it} / Asset_{i,t-1}) = k_1 (1 / Asset_{i,t-1}) + k_2 (SALES_{i,t-1} / Asset_{i,t-1}) + \varepsilon_{it}$$

Where:

DISEXP$_{it}$ is the discretionary expenses of company i in year t;

Asset$_{i,t-1}$ is the total assets of company i in year t-1; and

SALES$_{it}$ is the sales of company i in year t.

2.1.2. Cost of Debt

The quality of financial information and information risk is important data for investors to make decisions because information risk is reflected in the firms' interest rate, and firms that report lower quality accounting information tend to have a higher cost of debt than companies disclosing higher quality financial information (Carmo et al., 2016). Additionally, Carmo et al. (2016) also argue that lenders generally assess information risk in determining interest rates. Moreover, Karjalainen (2011) found that financial information enables lenders to assess a firm's default risk and predict its future earnings and cash flows.

There have been some prior papers related to the relationship between the cost of debt and earnings management. Defond and Jiambalvo (1994) and Deangelo et al. (1994) investigated that managers use earnings management as a tool to manage earnings for convincing creditors. Francis et al. (2005) investigated the relation between accruals quality and the cost of debt and equity capital of a large sample of firms over the period 1970-2001. The results show that poorer accruals quality is associated with a larger cost of debt and equity. Gupta and Piage Fields (2006) examined the relation between firms' debt maturity structures and propensity to manage earnings. The result indicated that earnings management by firms is influenced by the relative amount of short-term debt used in firms' capital structures. Rodriguez-peres and Van Hemmen (2010) examined the relationship between debt, diversification, and earnings

management. Their result concluded that marginal increases in debt provide incentives for managers to manipulate earnings, and diversification provides the needed context for this accounting practice to be possible.

2.1.3. Control Variables

2.1.3.1. Big 4 Auditors

Many studies mention that higher audit quality provides greater independent assurance of the credibility and quality of financial reports (Lin and Hwang, 2010; Defond and Zhang, 2014; Healy and Palepu, 1993; Alzoubi, 2018). Moreover, some studies conclude that high audit quality is less effective in constraining earnings management practices in the case of emerging markets (Habbash and Alghamdi, 2017; Kabir et al., 2011). As suggested by DeAngelo (1981) and DeFond (1992), large audit firms provide high audit quality, independent experts to discover and report irregularities and misstatements in financial reports. Therefore, the Big 4 auditors are chosen to be the control variable as an indicator to assume the audit quality.

2.1.3.2. Firm Size

The level of firm size has attracted the attention of many researchers in many fields. Evidence from Kim, Liu, and Rhee (2003) which study the relation of earnings management to firm size show that firm size has positive impacts on earnings management because large firms usually have strong internal control systems and governance mechanisms, can access high-quality services from large CPA firms, and care about their reputations. Additionally, Ali, Noor, Khurshid, and Mahmood (2015) also state the reason large firms face more pressure from investors and financial analysts is to show positive earning or increase in earnings. On the other hand, the findings of Houqe et al. (2017) indicate that subject to firm-specific controls such as firm size, firm risk, audit complexity and corporate board independence, high audit quality reduces earnings management and lowers the cost of equity capital. Moreover, responsible investors may perceive a greater level of assurance than the firms in which they have invested have lower risk than investments in otherwise similar firms (Bachoo et al., 2013).

2.2. Relevant Theoretical

The author has selected three theories that relate to this paper. These are agency theory, signal theory, and thresholding theory.

2.2.1. Agency Theory

In relation to the study of Jensen and Meckling (1976), agency theory is a conflict of interest between principle and agency. Principle is the owner of the business, and agency is hired by principle to operate the business. The hypotheses of agency theory argues that most employees in an organization act in their own personal interest. Thus, earnings management is a tool for firm managers to make a picture of financial reports for sending to business owners.

Agency theory has three important parts which consist of agency relationship, agency problem and agency cost.

2.2.1.1. Agency Relationship

Jensen and Meckling (1976) define agency relationship as a working contract between the principal and the agent to perform some service on their behalf, giving the agent some of their decision-making power. By its nature, the agency relationship is problematic if the principal and the agent's personal interests are divergent.

The agency theory is based on two behavioral assumptions including individuals that seek to maximize their utility and individuals that are likely to benefit from the incompleteness of contracts. Agency relationships are generally more complex and ambiguous (precisely in the sense that the agent is required to serve the interests of the principal) than contractual relations, especially when it comes to the question of ethics. If we stick to the classic version of agency theory, which states that the agent must always act in the interest of the principal, it is assumed that the interests of the principal are always morally acceptable, or that the agent must often act contrary to ethics in order to fulfill its "contract" in the agency relationship. These are positions that obviously do not comply with any workable model of business ethics.

2.2.1.2. Agency Problem

An organization has two parties that have different and opposite goals and interests, and they are known as the principal and the agency. Thus, this conflict of interest becomes a problem for the agency. The agency problem is not only limited to

the principal and agent, rather it has gone beyond and covered other parties like creditors, major shareholders, and minor shareholders.

1. Type of Agency Problem

Economic and finance researchers have categorized the agency problem into three types. First is the problem between the principal and agents, which arises due to the information asymmetry and variances in risk-sharing attitudes (Jensen & Meckling, 1976; Ross, 1973). Second is the conflict that occurs between the major and minor shareholders (Gilson & Gordon, 2003; Shleifer & Vishny, 1997), and it arises because major owners take decisions for their benefit at the expense of the minor shareholders. The last is the problem between the owners and creditors. This conflict happens when the owners take more risky investment decisions against the will of the creditors.

Type 1 – Principal and Agent Problem: The agency problem between owners and managers in organizations due to the separation of ownership from control was found since the birth of large corporations (Berle & Means, 1932). The owners assign the task to managers to manage the firm with a hope that managers will work for the benefit of the owners. However, managers are more interested in their compensation maximization. The argument on the agent's self-satisfying behavior is based on the rationality of human behavior (Sen, 1987; Williamson, 1985), which states that human actions are rational and motivated to maximize their own ends. The misalignment of interest between principal and agent and the lack of proper monitoring due to diffused ownership structure leads to the conflict, which is known as principal and agent conflict.

Type 2 – Principal and Principal Problem: The underlying assumption of this type of agency problem is the conflict of interest between major owners holding the majority of the shares of a firm, and minor owners holding a significantly smaller portion of the firm's share. The majority owners or block holders have higher voting power and can make decisions in favor of their benefit, which hampers the interests of the minor shareholders (Fama & Jensen, 1983). This kind of agency problem prevails in a country or company, where the ownership is concentrated in the hands of few persons or with the family owners, then the minority shareholders find it difficult to protect their interests or wealth (Demsetz & Lehn, 1985).

Type 3 – Principal and Creditor Problem: The conflict between owners and creditors arises due to projects undertaken and financing decisions taken by the shareholders

(Damodaran, 1997). The shareholders try to invest in risky projects, where they expect higher rates of return. The risk involved in the projects raises the cost of the finance and decreases the value of outstanding debt, which affects the creditors. If the project is successful, then the owners will enjoy huge profits, while the interest of the creditors is limited as they get only a fixed rate of interest. On the other hand, if the project fails, the creditors will be forced to share some of the losses and generally, this problem persists in these kinds of circumstances.

2. Causes of Agency Problem

A study by Chowdhury (2004) has pointed out several reasons for the occurrence of the agency problem, like separation of the ownership from control, differences in risk attitudes between the principal and agents, short period involvement of the agents in the organization, unsatisfactory incentive plans for the agents and the prevalence of information asymmetry within the firm. These causes of the agency problem are often found in the listed firms between the principal and agent, major owners and minor owners, and owners and creditors (Barnea, Haugen, & Senbet, 1985).

The persistence of the agency problem in every organization prompted the researchers to identify the real causes and their remedies. Jensen and Meckling (1976) opined that the agency problem can be mitigated if the owner and manages the firm, otherwise this problem will persist as ownership and control differ (Ang, Cole, & Lin, 2000).

3. Remedies to Agency Problem

The study of agency problem and its remedies is an ongoing field of research in both the corporate and academic world. Eisenhardt (1989) highlighted that a proper governance system can relegate the agency conflict, and he recommended two proposals to minimize the agency problem. The first is to have an outcome-based contract, where the action of the agents' can be checked. Secondly, the principal needs to form a strong information structure, where the principal is aware of all the information about the agents' actions so they cannot misrepresent the principals.

Many researchers have documented certain remedies to the agency problem, which are cited below:

1. Managerial ownership: Granting of stocks to the agents increases their affiliation to the firm. Jensen and Meckling (1976) described that managerial ownership

makes the manager work as the owner in the organization and concentrate on the firms' performance. By this, the interest of the owners' and managers' interests align.

2. Executive compensation: An inadequate compensation package may force the managers to use the owners' property for their private benefit. A periodic compensation revision and proper incentive package can motivate managers to work harder for the better performance of the firm (Core, Holthausen, & Larcker, 1999) and by which the owners can maximize their wealth.

3. Debt: Increase in the debt levels in a firm disciplines the managers. The periodic payment of the debt service charges and principal amount to the creditors can make the managers more cautious regarding taking inefficient decisions that may hamper the profitability of the firm (Frierman & Viswanath, 1994).

4. Labor market: Effective managers always aspire for better opportunity and remuneration from the market and the market estimate the manager's ability by their previous performance (Fama, 1980). For this reason, managers have to prove their worth in the firm by maximizing the value of the firm and this increases the effectiveness and efficiency of the managers.

5. Board of directors: The inclusion of more outside and independent directors in the board (Rosenstein & Wyatt, 1990) may serve to diligently watch the actions of the managers and help in aligning interests among the owners and managers.

6. Block holders: A strong owner, concentrated ownership, or block holders can closely monitor the behaviors of the managers and can control their activities to improvise the value of the firm (Burkart, Gromb, & Panunzi, 1997).

7. Dividends: The profit distribution as dividends leads to a decline in the agency conflict (Park, 2009). Dividend distribution decreases the internal funds, so the firm has to attract external funds to finance. For this, managers need to make the firm perform better in order to allure market participants. Dividend payout also resolves the agency conflict between inside and outside shareholders (Jensen, 1986; Myers, 2000).

8. Market for corporate control: Poor performing firms may be taken over by an efficient firm and the acquiring firm may eradicate the inefficient management

(Kini, Kracaw, & Mian, 2004), which stimulates the managers to perform more efficiently.

2.2.1.3. Agency Cost

Both the principal and the agent will have to assume monitoring and obligation costs. Agency costs occur when suspicion arises between the two parties. Based on Jensen and Meckling (1976), agency cost can be categorized into three groups.

1. Monitoring costs borne by the principal to limit the opportunistic behavior of the agent and incentive costs (incentive systems) incurred by the principal to orient the agent's behavior.

2. The obligation or commitment costs that may have been incurred by the agent to win the principal's trust (motivation cost).

3. The third type of cost is an opportunity cost referred to as "residual loss" which equates to the loss of utility suffered by the principal following a divergence of interest with the agent, such as the cost sustained by the principal following the unfavorable management of the principal's interests by the agent.

2.2.2. Signaling Theory

Signaling theory is studied by Spence (1973) and developed by Ross (1977). This theory mentions asymmetric information between managers and investors. Suggested by Spence (1973, 1976), earnings management can be considered a signal because it has the three features. Frist, firms possess the incentive to use earnings management to convey internal firm information to users (Arya et al., 2003). Thus, informational earnings management influences the confidence level of investors regarding firm performance. Second, managers may apply earnings management to manipulate accounting numbers and therefore report better profit. In accounting, total accruals comprises both nondiscretionary and discretionary accruals, with the latter (as a proxy for earnings management) mostly involving a manager's valuation of the future performance of the firm. Third, their costs are negatively correlated for high-quality firms compared to low-quality firms, and can hinder low-quality firms from imitating high-quality firms. In this context, earnings management is the signal to which the investor's reaction is the signal cost.

In a paper by Mahjoub and Miloudi (2015), there are found to be two types of signaling theory which are informational and opportunist signals. Information signal supports the idea that managers having privileged information choose to communicate this information to the market in order to adjust the values of securities and thereby reflect the real value of the company and this reduces the information asymmetry between the different actors on the capital market. According to Ahmed et al. (1999), companies with high growth prospects use earnings management to report these investment opportunities. Another type, opportunist signal considers that managers can use this type of signal to camouflage unprofitable investments and mislead investors in order to obtain personal gain as job security or to maximize their wealth through salary bonus based on the result.

2.3. Result of Previous Studies

2.3.1. Earnings Management

Orazalin and Akhmetzhanov (2019) examined the impacts of earnings management and audit quality on cost of debt in Kazakhstan. Their results show that earnings management is negatively related to cost of debt, and higher audit quality has no impact on both earnings management and the effect of earnings management on cost of debt whether companies were audited by Big 4 Auditors or other audit firms. Moreover, this study suggests that companies have incentives to engage in earnings management to affect their cost of borrowing. In contrast, two recent studies prove that earnings management has a relationship with audit risk and audit opinion. Imen and Anis (2020), who investigated the mediating effect of earnings management on the relation between the components of audit certification, found that earnings management mediates the relationship between timely disclosure and audit risk. Fakhfakh and Jarboui (2020), who studied the interrelationship between audit opinion and earnings management and the moderating effect of audit quality in these relations, also found that audit quality moderates the effect of earnings management on modified audit opinion. Apart from this, Setiawan, Taib, Phua and Chee (2020) consider the effect of family ownership on the relationship between IFRS adoption and earnings management in the Indonesian banking industry, and the study shows that IFRS adoption and family ownership has a negative effect on earnings management. The adoption of IFRS has

reduced the level of earnings management in Indonesian banks. In addition, Lin and Rong (2012) also found that other comprehensive income has played an important role in all comprehensive income and significantly affects earnings management.

Conversely, Lazzem and Jilani (2018) examined the impact of leverage increases on accrual-based earnings management practices using a sample of French indexed firms and found that leverage has a positive effect on earnings management. Furthermore, this study also concludes that debt provides the framework for the emergence and rise of earnings management. Similarly, Fung and Goodwin (2013) found that short-term debt is positively associated with accruals-based earnings management from a sample of all US non-financial industry firms. The coefficient for short-term debt is positively associated with discretionary accruals for low creditworthy firms, consistent with financial distress theory. Apart from these, a study by Alzoubi (2018) examines the influence of audit quality and debt financing on earnings management. The results suggest that audit quality (auditor tenure, size, specialization, and independence) and debt financing (low debt) diminish the potential of earnings management, and, in turn, enhance the financial reporting quality. Recently, Ater and Hansen (2020) investigated firms' incentives to manage earnings prior to private debt issuances. Their results demonstrate that firms use income increasing earnings management prior to other capital-raising events generalized to the private debt setting, but only for firms with a longer-term history of income increasing earnings management. Lastly, Vilalai, Petchchedchoo, and Kumsuprom (2020) examine the relationship between real earnings management and accrual-based earnings management implications for future profitability. Their findings show that real earnings management based on abnormal cash flows from operating activities has a positive relation to future profitability, but real earnings management based on abnormal discretionary expenses and abnormal provision for doubtful accounts have a negative relation to future profitability. For accrual-based earnings management, there was found to be no relation to future profitability.

2.3.2. Cost of Debt

There is sufficient evidence relating to previous studies of cost of debt. Carmo et al. (2016) examine the relationship between earnings quality and the cost of debt for Portuguese private companies. Their study shows a negative relationship

between earnings quality and the cost of debt and controls for company size and debt level. Earnings quality has a greater effect on reducing the cost of debt in companies having audited financial statements, and the finding also suggests that banks give greater importance to audited financial information when deciding the interest rate. Coffie, Bedi and Amidu (2018) investigated the effects of audit quality on the cost of capital in Ghana. Their findings indicate that there is a negative correlation between audit quality and all the components and overall cost of capital, specifically cost of equity, cost of debt, and weighted average cost of capital, and suggest that lenders and investors consider the relevance of larger boards, listing status and PPE as collateral and high return on assets to reduce the required rate of return. Another study, conducted by Shailer and Wang (2015) investigates the impact of government controlling ownership on the cost of debt of Chinese listed corporations. Their study indicates that firms under government control generally have a lower cost of debt than firms under private control, emphasizing the benefits arising from government control in Chinese firms' financing activities. Aside from these, a study by Hashim and Amrah (2016) determines whether there is any difference in the relationship between the board of directors, audit committee effectiveness, and cost of debt among the family and non-family-owned companies in the Sultanate of Oman. The result indicates that the impact of the effectiveness of the board of directors on the cost of debt is negative and significant for the full and non-family sample, while this relationship becomes weak and not significant for family firms, and audit committee effectiveness and cost of debt is a significant negative association based on the full and family firm samples, whereas this relationship is not significant for non-family firms.

Alternatively, Muttakin, Mihret, Lemma and Khan (2020) examined the association between integrated reporting and cost of debt and explored the moderating role of integrated reporting on the inverse association between financial reporting quality and cost of debt. The findings imply that firms providing integrated reports incur a lower cost of debt than firms that do not provide such reports because integrated reporting improves a firm's information environment, which in turn, reduces information acquisition costs, enhances market liquidity, and mitigates monitoring cost, all of which are associated with a reduction in the cost of capital. Moreover, it provides support to the idea that integrated reporting enhances the understandability of annual

reports to lenders regarding the financial and non-financial corporate value drivers of the borrowers. Sanoran (2020) aims to examine whether audit partner public-client specialization and busyness impact the cost of debt, and the results show that a greater number and proportion of public clients in an audit partner's portfolio leads to a higher cost of debt, supporting the audit partner busyness effect. Lastly, Jantadej and Wattanatorn (2020) investigated the relationship between cost of debt and board effectiveness, and their findings show that the effectiveness of governance has a positive effect on the cost of debt financing. In addition, the number of board members such as board size, the number of board meetings, and the percentage of non-executives on audit committees is positively associated with the cost of debt financing.

Table 2.1 Table result of previous study summary

Earnings Management			
Author	**Year**	**Subject of Study**	**Findings**
Orazalin and Akhmetzhanov	2019	Examines the effects of earnings management and audit quality on cost of debt of listed companies in Kazakhstan.	- Earnings management is negatively related to cost of debt. - Higher audit quality has no impact on both earnings management and the effect of earnings management on cost of debt whether companies are audited by Big 4 Auditors or other audit firms.
Vilalai, Petchchedchoo, and Kumsuprom	2020	The relationship of real earnings management and accrual-based earnings management implications for future profitability.	- Real earnings management based on abnormal cash flows from operating activities has a positive relation to future profitability. - Real earnings management based on abnormal discretionary expenses and abnormal provision for doubtful accounts have a negative relation to future profitability. - Accrual-based earnings management has no relation to future profitability.

Table 2.1 (Continue)

Author	Year	Subject of Study	Findings
Fakhfakh and Jarboui	2020	Study of the interrelationship between audit opinion and earnings management and the moderating effect of audit quality in these relations.	Audit quality moderates the effect of earnings management on modified audit opinion.
Setiawan, Taib, Phua and Chee	2020	This study considers the effect of family ownership on the relationship between IFRS adoption and earnings management in the Indonesian banking industry.	IFRS adoption and family ownership have a negative effect on earnings management.
Lin and Rong	2012	This paper is to verify whether the disclosure of other comprehensive income has effectively improved the transparency of corporate disclosure and thus effectively reduced earnings management.	Other comprehensive income has played an important role in all comprehensive income and significantly affects earnings management.
Fung and Goodwin	2013	Examine how the firm's creditworthiness affects the relation between short-term debt and earnings management.	Short-term debt is positively associated with accruals-based earnings management.

Table 2.1 (Continue)

Author	Year	Subject to Study	Finding
Alzoubi	2018	Examine the influence of audit quality and debt financing on earnings management.	Audit quality (auditor tenure, size, specialization, and independence) and debt financing (low debt) diminish the potential of earnings management, and, in turn, enhance the financial reporting quality.
Lazzem and Jilani	2018	Examine the impact of leverage increases on accrual-based earnings management practices for a sample of French firms.	- Leverage has a positive effect on earnings management. - Debt provides the framework for the emergence and rise of earnings management.
Ater and Hansen	2020	Investigates firms' incentives to manage earnings prior to private debt issuances.	Firms use income-increasing earnings management prior to other capital raising events generalizes to the private debt setting, but only for firms with a longer-term history of income-increasing earnings management.
Imen and Anis	2020	Investigated the mediating effect of earnings management on the relation between the components of audit certification.	Earnings management mediates the relationship between timely disclosure and audit risk.

Table 2.1 (Continue)

Cost of Debt			
Author	**Year**	**Subject to Study**	**Finding**
Shailer and Wang	2015	Investigates the impact of government controlling ownership on the cost of debt of Chinese listed corporations.	Firms under government control generally have a lower cost of debt than firms under private control, emphasizing the benefits arising from government control in Chinese firms' financing activities.
Coffie, Bedi and Amidu	2018	Investigate the effects of audit quality on the cost of capital in Ghana.	There is a negative correlation between audit quality and all the components and overall cost of capital specifically cost of equity, cost of debt, and weighted average cost of capital.
Hashim and Amrah	2016	Determine whether there is any difference in the relationship between the board of directors, audit committee effectiveness, and cost of debt among the family- and non-family-owned companies.	- The impact of the effectiveness of the board of directors on the cost of debt is negative and significant for the full and non-family sample, while this relationship becomes weak and not significant for family firms. - Audit committee effectiveness and cost of debt is a significant negative association based on the full and family firm samples, whereas this relationship is not significant for non-family firms.

Table 2.1 (Continue)

Author	Year	Subject to Study	Finding
Muttakin, Mihret, Lemma and Khan	2020	Examine the association between integrated reporting and cost of debt and explore the moderating role of integrated reporting on the inverse association between financial reporting quality and cost of debt.	Firms providing integrated reports incur a lower cost of debt than firms that do not provide such reports because integrated reporting improves a firm's information environment, which in turn, reduces information acquisition costs, enhances market liquidity and mitigates monitoring cost, all of which are associated with a reduction in cost of capital.
Sanoran	2020	Examine whether audit partner public-client specialization and busyness impact the cost of debt.	A greater number and proportion of public clients in an audit partner's portfolio leads to a higher cost of debt, supporting the audit partner busyness effect.
Jantadej and Wattanatorn	2020	Investigate the relationship between cost of debt and board effectiveness.	The effectiveness of governance has a positive effect on the cost of debt financing.
Carmo et al.	2016	Examines the relationship between earnings quality and the cost of debt for Portuguese private companies.	There is a negative relationship between earnings quality and the cost of debt and controls for company size and debt level.

Chapter 3
Research Methodology

3.1. Population and Sample Size

Annual financial statements from around 2018 to 2020 of listed companies in the MAI market were used as secondary data to study the effect of earnings management on cost of debt. Listed companies in the MAI are comprised of 167 companies from 7 industry groups. These include 9 companies from Agro and Food Industry, 11 companies from Consumer Products, 38 companies from Industrial, 32 companies from Property and Construction, 13 companies from Resources, 49 companies from Services and 15 companies from Technology. The total of collected data from listed companies in the MAI is 501 during the selected period.

Table 3.1 List of company name in MAI

Number	Abbreviation	Company Name (Public Company Limited)
Agro and Food Industry		
1	ABICO	ABICO HOLDINGS
2	AU	AFTER YOU
3	JCKH	JCK HOSPITALITY
4	KASET	THAI HA PUBLIC
5	MM	MUDMAN
6	SUN	SUNSWEET
7	TACC	T.A.C. CONSUMER
8	TMILL	T S FLOUR MILL
9	XO	EXOTIC FOOD
Consumer Products		
10	BGT	BGT CORPORATION
11	BIZ	BUSINESS ALIGNMENT

Table 3.1 (Continue)

Number	Abbreviation	Company Name (Public Company Limited)
12	DOD	DOD BIOTECH
13	ECF	EAST COAST FURNITECH
14	HPT	HOME POTTERY
15	IP	INTER PHARMA
16	JUBILE	JUBILEE ENTERPRISE
17	MOONG	MOONG PATTANA INTERNATIONAL
18	NPK	NEW PLUS KNITTING
19	OCEAN	OCEAN COMMERCE
20	TM	TECHNO MEDICAL
Industrial		
21	2S	2S METAL
22	ADB	APPLIED DB
23	BM	BANGKOK SHEET METAL
24	CHO	CHO THAVEE
25	CHOW	CHOW STEEL INDUSTRIES
26	CIG	C.I.GROUP
27	COLOR	SALEE COLOUR
28	CPR	CPR GOMU INDUSTRIAL
29	FPI	FORTUNE PARTS INDUSTRY
30	GTB	GETABEC
31	KCM	K.C. METALSHEET
32	KUMWEL	KUMWELL CORPORATION
33	KWM	K. W. METAL WORK
34	MBAX	MULTIBAX
35	MGT	MEGACHEM (THAILAND)
36	NDR	N.D. RUBBER
37	PDG	PRODIGY
38	PIMO	PIONEER MOTOR

Table 3.1 (Continue)

Number	Abbreviation	Company Name (Public Company Limited)
39	PJW	PANJAWATTANA PLASTIC
40	PPM	PORN PROM METAL
41	PRAPAT	PEERAPAT TECHNOLOGY
42	RWI	RAYONG WIRE INDUSTRIES
43	SALEE	SALEE INDUSTRY
44	SANKO	SANKO DIECASTING (THAILAND)
45	SFT	SHRINKFLEX (THAILAND)
46	SELIC	SELIC CORP
47	SWC	SHERWOOD CORPORATION (THAILAND)
48	TMC	T.M.C. INDUSTRIAL
49	TMI	TEERA-MONGKOL INDUSTRY
50	TMW	THAI MITSUWA
51	TPAC	THAI PLASPAC
52	TPLAS	THAI PLASTIC INDUSTRIAL (1994)
53	UBIS	UBIS (ASIA)
54	UEC	UNIMIT ENGINEERING
55	UKEM	UNION PETROCHEMICAL
56	UREKA	EUREKA DESIGN
57	YUASA	YUASA BATTERY (THAILAND)
58	ZIGA	ZIGA INNOVATION
Property and Construction		
59	ARIN	ARINSIRI LAND
60	ARROW	ARROW SYNDICATE
61	ALL	ALL INSPIRE DEVELOPMENT
62	BC	BOUTIQUE CORPORATION
63	BSM	BUILDERSMART
64	BTW	BT WEALTH INDUSTRIES
65	CAZ	CAZ (THAILAND)

Table 3.1 (Continue)

Number	Abbreviation	Company Name (Public Company Limited)
66	CHEWA	CHEWATHAI
67	CMC	CHAOPRAYAMAHANAKORN
68	CRD	CHIANGMAI RIMDOI
69	DHOUSE	DHOUSE PATTANA
70	DIMET	DIMET (SIAM)
71	FLOYD	FLOYD
72	HYDRO	HYDROTEK
73	IND	INDEX INTERNATIONAL GROUP
74	JAK	JAKPAISAN ESTATE
75	JSP	J.S.P. PROPERTY
76	K	KINGSMEN C.M.T.I.
77	KUN	VILLA KUNALAI
78	META	META CORPORATION
79	PPS	PROJECT PLANNING SERVICE
80	PROUD	PROUD REAL ESTATE
81	SK	SIRAKORN
82	SMART	SMART CONCRETE
83	STAR	STAR UNIVERSAL NETWORK
84	STC	STC CONCRETE PRODUCT
85	STI	STONEHENGE INTER
86	T	T ENGINEERING CORPORATION
87	TAPAC	TAPACO
88	THANA	THANASIRI GROUP
89	TIGER	THAI ENGER HOLDING
90	TITLE	RHOM BHO PROPERTY
Resources		
91	ABM	ASIA BIOMASS
92	AIE	AI ENERGY

Table 3.1 (Continue)

Number	Abbreviation	Company Name (Public Company Limited)
93	PSTC	POWER SOLUTION TECHNOLOGIES
94	QTC	QTC ENERGY
95	SAAM	SAAM ENERGY DEVELOPMENT
96	SEAOIL	SEA OIL
97	SR	SIAMRAJ
98	TAKUNI	TAKUNI GROUP
99	TPCH	TPC POWER HOLDING
100	TRT	TIRATHAI
101	UMS	UNIQUE MINING SERVICES
102	UPA	UNITED POWER OF ASIA
103	UWC	UA WITHYA
Services		
104	A5	ASSET FIVE GROUP
105	AKP	AKKHIE PRAKARN
106	AMA	AMA MARINE
107	ARIP	ARIP
108	AUCT	UNION AUCTION
109	ATP30	ATP30
110	BOL	BUSINESS ONLINE
111	CMO	CMO
112	D	DENTAL CORPORATION
113	DV8	DV8
114	EFORL	E FOR L AIM
115	ETE	EASTERN TECHNICAL ENGINEERING
116	FSMART	FORTH SMART SERVICE
117	FVC	FILTER VISION
118	GSC	GLOBAL SERVICE CENTER
119	HARN	HARN ENGINEERING SOLUTIONS

Table 3.1 (Continue)

Number	Abbreviation	Company Name (Public Company Limited)
120	IMH	INTERMEDICAL CARE AND LAB HOSPITAL
121	KIAT	KIATTANA TRANSPORT
122	KK	K&K SUPERSTORE SOUTHERN
123	KOOL	MASTERKOOL INTERNATIONAL
124	LDC	LDC DENTAL
125	LEO	LEO GLOBAL LOGISTICS
126	MORE	MORE RETURN
127	MPG	MPG CORPORATION
128	MVP	M VISION
129	NBC	NATION BROADCASTING CORPORATION
130	NCL	NCL INTERNATIONAL LOGISTICS
131	NEWS	NEWS NETWORK CORPORATION
132	NINE	NATION INTERNATIONAL EDUTAINMENT
133	OTO	ONE TO ONE CONTACTS
134	PHOL	PHOL DHANYA
135	PICO	PICO THAILAND
136	QLT	QUALITECH
137	RP	RAJA FERRY PORT
138	SABUY	SABUY TECHNOLOGY
139	SE	SIAMEAST SOLUTIONS
140	SLM	SLM CORPORATION
141	SONIC	SONIC INTERFREIGHT
142	SPA	SIAM WELLNESS GROUP
143	TNDT	THAI NONDESTRUCTIVE TESTING
144	TNH	THAI NAKARIN HOSPITAL
145	TNP	THANAPIRIYA
146	TSF	THREE SIXTY FIVE
147	TVD	TV DIRECT

Table 3.1 (Continue)

Number	Abbreviation	Company Name (Public Company Limited)
148	TVT	TV THUNDER
149	THMUI	THAI MUI CORPORATION
150	VL	V.L. ENTERPRISE
151	WINNER	WINNER GROUP ENTERPRISE
152	YGG	YGGDRAZIL GROUP
Technology		
153	APP	APPLICAD
154	COMAN	COMANCHE INTERNATIONAL
155	ICN	INFORMATION AND COMMUNICATION NETWORKS
156	IIG	I&I GROUP
157	INSET	INFRASET
158	IRCP	INTERNATIONAL RESEARCH CORPORATION
159	ITEL	INTERLINK TELECOM
160	NETBAY	NETBAY
161	PLANET	PLANET COMMUNICATIONS ASIA
162	SICT	SILICON CRAFT TECHNOLOGY
163	SIMAT	SIMAT TECHNOLOGIES
164	SKY	SKY ICT
165	SPVI	S P V I
166	TPS	THE PRACTICAL SOLUTION
167	VCOM	VINTCOM TECHNOLOGY

According to Table 3.2, the usage data to examine the study is 345 from the deduction of total collecting data which includes Agro and Food Industry (27), Consumer Products (33), Industrial (114), Property and Construction (96), Resources (39), Services (147), and Technology (45) with uncollected data and outliers comprising (156).

Table 3.2 Usage data of the study

Industry Groups in MAI	Data collection from 2018 to 2020	Percentage
Agro and Food Industry	27	5.39%
Consumer Products	33	6.59%
Industrial	114	22.75%
Property and Construction	96	19.16%
Resources	39	7.78%
Services	147	29.34%
Technology	45	8.98%
Deduct: Uncollected Data	(156)	(31.14%)
Usage Data	**345**	**68.86%**

This study research sample does not include any companies from the finance industry because those companies have business regulations, financial reporting, and principle apart from any other industry companies in MAI. Therefore, there might be an impact on hypotheses testing in the research results. In addition, Thailand has faced a financial crisis resulting from the COVID-19 pandemic during the whole year of 2020. Most companies have experienced troubles with profitability and credit management, especially the finance industry group. The low-interest rate scenario, along with the significant impact of the COVID-19, is reducing the core banking profitability in mature markets. These are the reasons that the author does not include the finance industry in the research sample.

3.2. Variables Measurement

3.2.1. Earnings Management

This study uses accrual earnings management from the performance-adjusted discretionary model proposed by Kothari et al. (2005) to measure earnings management variables. The Kothari model is the model adjusted from the Jones and the modified Jones model to detect earnings management more accurately by adding return on assets to estimate the discretionary accrual of a firm.

The performance-adjusted discretionary model proposed by Kothari et al. (2005):

$$\frac{TA_t}{A_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{t-1}}\right) + \alpha_2\left[\frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}}\right] + \alpha_3\left(\frac{PPE_t}{A_{t-1}}\right) + \alpha_4\left(\frac{ROA_t}{A_{t-1}}\right) + \varepsilon i, t$$

Where:

TA_t: total accruals, measured as the difference between total revenue and operating cash flows from activities; A_{t-1}: total assets at the end of year t-1; ΔREV_t: the difference in operating revenues in year t and year t-1; ΔREC_t: the difference in net receivables between year t and year t-1; PPE_t: property, plant and equipment at the end of year t; ROA_t: return on assets in year t; ε: Abnormal of earnings management model.

The reason that the author chooses accrual earning management is because most listed companies in the MAI market may use accrual basic to produce their financial statements, and there are also many studies that mention cost of debt and accrual quality. Therefore, accrual earnings management is appropriate to use for measuring the earnings management variable in this paper.

3.2.2. Cost of Debt

Based on the studies of Farooq and Jabbouri (2015), the cost of debt is calculated by interest expense for the year divided by total liability during the year.

$$\text{Cost of Debt} = \frac{\text{Interest Expense}}{\text{Total Liability}}$$

3.2.3. Control Variables

There are two control variables which are firm size and Big 4 auditors. Firstly, larger firm size tends to have a lower cost of debt because of lower perceived risk as mentioned above, so firm size affects the cost of debt. To measure firm size, the number is estimated as the natural log of total assets. Secondly, Big 4 auditors are one indicator used to verify the audit quality as also mentioned above. This indicator is measured as a dummy variable that takes a value of one if the financial statements of the company are audited by Big 4 auditors.

3.3. Data Collection

This study uses secondary data to study the effect of earnings management on cost of debt. The data was collected from two different sources as follow:

1. Annual financial statements from around 2018 to 2020 of listed companies in the MAI market was downloaded from SETSMART, or the website of The Securities and Exchange Commission of Thailand (www.sec.or.th).

2. Others come from academic journals, research papers, online resources and so on.

3.4. Data Analysis

All of the collected data was analyzed using descriptive analysis techniques. Pearson correlation coefficient and multiple regression analysis were used to determine the effect of earnings management on the cost of debt. This analysis is calculated by running the SPSS program, and set a result of significance level at 0.05 with the negative or positive effect.

3.5. Research Model

According to the conceptual framework and prior studies as mentioned earlier, the study concludes the research model as follow:

Research Model: $COD_{i,t} = \beta 0 + \beta 1 (EM_{i,t}) + \beta 2 (AUDIT_{i,t}) + \beta 3 (SIZE_{i,t}) + \varepsilon_{i,t}$

Where:

COD: Cost of Debt in company i in year t;

EM: Earnings Management in company i in year t;

AUDIT: Audit Quality indicate as Big 4 Auditors in company i in year t; and

SIZE: Firm Size in company i in year t.

ε: Abnormal of research model

i: A company of sample size in a listed company in MAI.

t: The year of data is collected around 2018 to 2020.

Chapter 4
Results of the Study

This study aims to examine the effect of earning management on cost of debt in listed companies in the MAI market during the selected period from 2018 to 2020 analyzing data by descriptive analysis, Pearson correlation coefficient, and multiple regression analysis.

4.1. Descriptive Analysis

Descriptive analysis is used to analyze the characteristics of the research variables. This analysis has values of Mean, Median, Minimum, Maximum and Standard Deviation.

Table 4.1 Statistical analysis of Descriptive

Research Variable	Mean	Median	Minimum	Maximum	Std.Dev
TA_t/A_{t-1}	-0.3746	-0.0501	-122.9687	4.2810	6.5679
$1/A_{t-1}$	0.0000	0.0000	0.0000	0.0000	0.0000
$(\Delta REV_t - \Delta REC_t)/A_{t-1}$	-0.0582	0.0101	-26.5089	2.0656	1.4435
PPE_t/A_{t-1}	1.0617	0.3055	0.0023	260.1924	13.8731
ROA_t/A_{t-1}	0.0000	0.0000	0.0000	0.0000	0.0000
EM	-0.3821	-0.0300	-123.0200	0.5100	6.6228
COD	21.4935	18.3791	0.0001	286.1463	21.5369
AUDIT	0.3960	0.0000	0.0000	1.0000	0.4898
SIZE	9.0454	9.0355	6.2462	10.1207	0.4484

According to Table 4.1, the result of the descriptive analysis shows that TA_t/A_{t-1} has a Mean of -0.3746, Median of -0.0501, Minimum of -122.9687, Maximum of 4.2810, and Standard Deviation of 6.5679. $1/A_{t-1}$ has a Mean of 0.0000, Median of

0.0000, Minimum of 0.0000, Maximum of 0.0000, and Standard Deviation of 0.0000. $(\Delta REV_t - \Delta REC_t)/A_{t-1}$ has a Mean of -0.0582, Median of 0.0101, Minimum of -26.5089, Maximum of 2.0656, and Standard Deviation of 1.4435. PPE_t/A_{t-1} has a Mean of 1.0617, Median of 0.3055, Minimum of 0.0023, Maximum of 260.1924, and Standard Deviation of 13.8731. ROA_t/A_{t-1} has a Mean of 0.0000, Median of 0.0000, Minimum of 0.0000, Maximum of 0.0000, and Standard Deviation of 0.0000. EM has a Mean of -0.3821, a Median of -0.0300, a Minimum of -123.0200, a Maximum of 0.5100, and a Standard Deviation of 6.6228. COD has a Mean of 21.4935, a Median of 18.3791, a Minimum of 0.0001, a Maximum of 286.1463, and a Standard Deviation of 21.5369. AUDIT has a Mean at 0.3960, Median of 0.0000, Minimum of 0.0000, Maximum of 1.0000, and Standard Deviation of 0.4898. SIZE has a Mean of 9.0454, a Median of 9.0355, a Minimum of 6.2462, a Maximum of 10.1207, and a Standard Deviation of 0.4484.

Table 4.2 Variable Detail

Variable	Description
TA_t	Total accruals, measured as the difference between total revenue and operating cash flows from activities.
A_{t-1}	Total assets at the end of year t-1
ΔREV_t	The difference in operating revenues in year t and year t-1
ΔREC_t	The difference in net receivables between year t and year t-1
PPE_t	Property, plant and equipment at the end of year t
ROA_t	Return on assets in year t
$\varepsilon_{i,t}$	Abnormal of earnings management model
EM	Accrual earnings management proposed by Kothari et al. (2005)
COD	Cost of debt, calculating by interest expense for the year divide by total liability during the year.
AUDIT	An indicator of audit quality, measured by a dummy variable of Big 4 Auditors.
SIZE	Firm Size, estimated as the natural log of total assets.

4.2. Pearson Correlation Coefficient

Before analysis by multiple regression analysis methods, the researcher needs to know the relationship of all existing variables in the study. Pearson correlation coefficient value is indicated as the relationship of these variables whether it is positive or negative relation. A study by Hair et al. (2010) argues that explanatory variables above 0.7 or -0.7 indicate the existence of multicollinearity, which is a serious problem in regression.

Table 4.3 Result of Pearson Correlation Coefficient

Variable	COD	AUDIT	SIZE	EM
COD	1			
AUDIT	-0.034	1		
SIZE	0.240^{**}	0.327^{**}	1	
EM	-0.027	0.045	-0.018	1

Note: [**] Correlation is significant at the 0.01 level [*] Correlation is significant at the 0.05 level

Table 4.4 The relation of Research Variable Summary

Order	Research Variable	Relationship
1	Pearson correlation of Earnings Management (EM)	Negative relation (-)
2	Pearson Correlation of Big 4 Auditors (AUDIT)	Negative relation (-)
3	Pearson Correlation of Firm Size (SIZE)	Positive relation (+)

Table 4.3 and Table 4.4 present a Pearson correlation result among variables for the period 2018 to 2020 of listed companies in the MAI market. The conclusion to these variables is below:

1. Cost of debt has a negative relation to earnings management at a value of -0.027. This suggests that the management of earnings in financial reporting can lead to having a low cost of debt from creditors.

2. Cost of debt has a negative relation to the Big 4 Auditors at a value of -0.034. This suggests that the quality of the Big 4 Auditors can create a low cost of debt.

3. Cost of debt has a positive relation to firm size at a value of 0.240. This suggests that the amount of cost of debt can be bigger or smaller followed by the organization size.

The Pearson correlation between independent and dependent variables are not higher than 0.7 or -0.7. The highest correlation is between Big 4 Auditors and firm size at 0.327. Therefore, there is no multicollinearity problem. Moreover, firm size is the only independent variable that is significant to the cost of debt. Other independent variables such as earnings management and Big 4 Auditors, both show a significant level over 0.05.

4.3. Multiple Regression Analysis

4.3.1. Result of Earnings Management Model

This study uses accrual earnings management from the performance-adjusted discretionary model proposed by Kothari et al. (2005) to measure earnings management variables. To examine the study's hypotheses, the abnormal value (ε) of earnings management model has to be found out in the first place.

Earnings Management Model:

$$\frac{TA_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{t-1}}\right) + \alpha_2 \left[\frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}}\right] + \alpha_3 \left(\frac{PPE_t}{A_{t-1}}\right) + \alpha_4 \left(\frac{ROA_t}{A_{t-1}}\right) + \varepsilon i, t$$

Table 4.5 Result of Earnings Management Model

Variable	Enter Method		t	p-value
	Unstandardized Coefficients B	Standardized Coefficients Beta		
(Constant)	0.123		7.396	0.000
$1/A_{t-1}$	-9773245.050	-0.045	-0.829	0.408
$(\Delta REV_t - \Delta REC_t)/A_{t-1}$	0.195	0.043	3.690	0.000[**]
PPE_t/A_{t-1}	-0.432	-0.912	-16.583	0.000[**]
ROA_t/A_{t-1}	-9393976.659	-0.005	-0.863	0.863
R^2	0.998			
Adj. R^2	0.998			
F	47926.041			
Sig. F	0.000			

Note: [**] Significant at the 0.01 level

[*] Significant at the 0.05 level

Table 4.5 show that dependent variable TA_t/A_{t-1} is significate to $(\Delta REV_t - \Delta REC_t)/A_{t-1}$ and PPE_t/A_{t-1} (Signification level at 0.000 lower than 0.05). Moreover, R^2 and Adj. R^2 are both 0.998 indicate that the proportion of variance in the dependent variable that can be explained by the independent variables 99.8%.

Based on Table 4.5, the α value is found out. Therefore, the model of earnings management is shown as below:

$$TA_t/A_{t-1} = 0.123 - 9773245.050 \, (1/A_{t-1}) + 0.195 \, [(\Delta REV_t - \Delta REC_t)/A_{t-1}] - 0.432$$
$$(PPE_t/A_{t-1}) - 9393976.659 \, (ROA_t/A_{t-1}) + \varepsilon_{i,t}$$

To find abnormal value (ε):

$$\varepsilon_{i,t} = TA_t/A_{t-1} - 0.123 + 9773245.050 \, (1/A_{t-1}) - 0.195 \, [(\Delta REV_t - \Delta REC_t)/A_{t-1}] + 0.432$$
$$(PPE_t/A_{t-1}) + 9393976.659 \, (ROA_t/A_{t-1})$$

4.3.2. Result of Study

The abnormal value (ε) of earnings management mentioned earlier is the value of earnings management to test the study's hypotheses. Two main variables for hypotheses testing are dependent variable which is cost of debt (COD) and independent variables which are earnings management (EM) including two control variables which are Big 4 Auditors (AUDIT) which is an indicator of audit quality and firm size (SIZE) as show in research model below:

Research Model:

$$COD_{i,t} = \beta0 + \beta1\ (EM_{i,t}) + \beta2\ (AUDIT_{i,t}) + \beta3\ (SIZE_{i,t})\ + \varepsilon_{i,t}$$

Table 4.6 Research Variable

Dependent Variable		Independent Variable	
		EM	Earnings Management
COD	Cost of Debt	AUDIT	Big 4 Auditors
		SIZE	Firm Size

Table 4.7 presents the results of multiple regression analysis for testing the hypotheses between dependent and independent variables.

Table 4.7 Result of research model

Variable	Enter Method		t	p-value
	Unstandardized Coefficients **B**	**Standardized Coefficients** **Beta**		
(Constant)	-64.054		-3.848	0.000
EM	-0.037	-0.016	-0.309	0.758
AUDIT	-3.865	-0.125	-2.264	0.024[*]
SIZE	9.457	0.281	5.082	0.000[**]
R²	0.072			
Adj. R²	0.064			
F	8.829			
Sig. F	0.000			

Note: [**] Significant at the 0.01 level

[*] Significant at the 0.05 level

According to Table 4.7, the conclusion of the study's hypotheses is below:

H1: Higher earning management of listed companies in MAI leads to a higher cost of debt.

The result of the study shows that cost of debt has a negative relation to earnings management but is not significant (significance level at 0.758 over 0.05). This suggests that higher earnings management can lead to having a lower cost of debt, but there is no effect between earnings management and cost of debt. Therefore, the first result rejects to hypothesis 1.

H2: The quality of Big 4 Auditors leads to a lower cost of debt of listed companies in MAI.

The result of the study show that cost of debt has a negative relation to Big 4 Auditors and is significant to each other (significance level at 0.024 lower than 0.05). This suggests that the quality of Big 4 Auditors can lead to having a lower cost of debt, and Big 4 Auditors are significant to the cost of debt. Therefore, the second result accepts hypothesis 2.

H3: The size of the organization is larger leads to a higher cost of debt of listed companies in the MAI.

The results show that cost of debt has a positive relation to firm size and is significant to each other (significance level at 0.000 lower than 0.05). This suggests that the larger firm size can lead to having a higher cost of debt. Therefore, the third result accepts hypothesis 3.

Table 4.8 Summary of Testing Hypotheses

Order	Hypotheses	Result of Testing	p-value
1	Higher earning management of listed companies in MAI leads to a higher cost of debt.	Reject	0.758
2	The quality of Big 4 Auditors leads to a lower cost of debt of listed companies in the MAI.	Accept	0.024
3	The size of the organization is larger leads to a higher cost of debt of listed companies in the MAI.	Accept	0.000

Chapter 5
Conclusions

This study has the intention to examine the impact of earnings management on cost of debt in the context of listed companies in the MAI market, and also investigates the relationship between cost of debt and earnings management including two other control variables. This chapter is concluded and discussed the study result including study limitations and potential future research.

5.1. Study Summary

The finding of testing the study's hypotheses is summarized as follows:

1. Earnings management of listed companies in the MAI market does not affect the cost of debt, and there is a negative relationship between them.
2. The quality of Big 4 Auditors affects the cost of debt of listed companies in the MAI market, and there is a negative relationship between them.
3. The size of a listed company in the MAI market affects their cost of debt, and there is a positive relationship between them.

5.2. Study Discussion

Firstly, results indicate that earnings management of financial reporting has no influence on the cost of debt in their company. Similarly, Gray, Koh and Tong (2009) who studied accruals quality, information risk, and cost of capital evidence from Australia show in their results that there is no association between discretionary accruals and cost of debt because Australian firms rely heavily on private debt which is likely to both increase the precision of accounting information and lower the information asymmetry across lenders. Tjondro, Halim, and Iskandar's (2020) study about discretionary accrual, and income volatility affecting the cost of debt on the Indonesia Stock Exchange also find that discretionary accruals had no effect on the cost

of debt because most of the company's capital came from private debt sector rather than public debt. They state that private lenders have more rights to supervise the borrowing firm so that the risk of information related to managerial reporting policies is reduced. Therefore, the bonds market in Indonesia does not pay too much attention to the accrual information side.

Secondly, results show that higher audit quality of Big 4 Auditors can lead to having a lower cost of debt of listed companies in the MAI market. This suggests that the audit quality of Big 4 Auditors can provide transparency of financial statements between lenders and borrowers to get a low-rate debt. Similarly, Orazalin and Akhmetzhanov (2019) examine the effects of earnings management and audit quality on the cost of debt in the Kazakhstan Stock Exchange (KASE). The findings also show that the quality of Big 4 Auditors leads to a lower cost of debt. Another study, by Alzoubi (2016) tested the association between audit quality and earnings management, and the results also indicate that audit quality and earnings management have a significant and negative relationship to each other.

Lastly, results indicate that size of an organization has a positive relation to the cost of debt. This suggests that they will need to borrow more to fund business activities when the company size is larger. Research from Reeb, Mansi, and Allee (2001) who studied firm internationalization and the cost of debt financing evidence from non-provisional publicly traded debt also argue that firms with greater levels of international activity have better credit ratings. the cost of debt financing is inversely related to the degree of firm internationalization beyond that incorporated in credit ratings.

5.3. Study Limitation

The study of effecting earnings management on cost of debt has two main limitations as mentioned below:

1. The sample size of this paper excludes non-finance listed companies in the MAI market because finance institutions play an important role in the operation of an economy.

2. The study uses accrual earrings management to measure earnings management practices.

5.4. Future Research

      According to the study limitations and other elements, there is a new possible avenue to provide for future research.

1. The research population should be all of the listed companies that register in the SET market of Thailand.
2. An indicator of audit quality should be changed from Big 4 Auditors to other indicators that match corresponding research.
3. Measurement of earnings management should be changed from accrual earnings management to real earnings management.
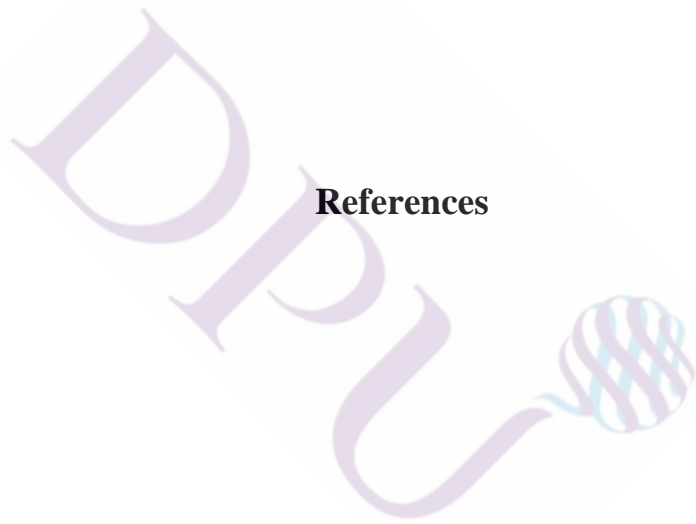
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