Auditor rotation and audit quality

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Abstract

The thesis investigates the effect of mandatory audit partner rotation (MAPR) on audit quality of listed companies that underwent three rotation periods in the Thai capital market. MAPR is one of the requirements that regulators in many countries impose on auditors in order to enhance audit quality. The benefit of MAPR is in the incoming audit partner enhancing auditor independence and offering fresh insights to a client, which is expected to improve audit quality as evidenced by greater financial statements quality. On the other hand, the new lead audit partner can lack client-specific knowledge, which may impair audit quality. There are ongoing discussions about the benefits of MAPR in a number of countries but only a few studies have been conducted on the effects of MAPR in developing countries. This thesis therefore aims to fill this gap by examining the impact of MAPR on audit quality in a developing country, Thailand.

This thesis is framed within the Agency Theory framework and also uses the IAASB (2014) framework for audit quality to identify the factors which have an impact on audit quality. A total of 417 firm-year observations between the years 2006 and 2017 are made of 286 non-financial Thai listed companies, all of which with experience of MAPR. The sample also includes multiple numbers of MAPR. The performance-matched discretionary accruals (DA) developed by Kothari, Leone, and Wasley (2005) are used to measure DA as a proxy for audit quality.

The results in this thesis suggest that MAPR does not significantly improve audit quality and the relationship between MAPR and audit quality is weak. It is possible that an incoming lead audit partner lacks client-specific information, is disadvantaged by the gradual learning curve in understanding a client's businesses, and may face challenges in communication within the audit team, all of which may not positively impact on audit quality. There is no strong evidence of an association between audit quality and other impacting factors, such as Big 4 audit firms, the audit firm industry specialist, the audit partner industry specialist, and the audit partner busyness. Results also present no

evidence of significant improvement in audit quality in the first MAPR subsequent to voluntary rotation.

However, MAPR does seem to improve audit quality under certain conditions, i.e. audit quality is improved depending on the number of rotation times, audit firm size and companies'/ clients' size. Only listed companies with three MAPR audited by Big 4 audit firms and only larger listed companies with three MAPR have higher audit quality within the MAPR framework. Further, only listed companies with three MAPR that have a positive DA, are associated with higher audit quality. The overall results of this thesis suggest that MAPR requirement does not immediately lead to an improvement in audit quality, at least not in the Thai capital market.

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List of Abbreviations

AAT	Accountant Association of Thailand
AFR	Audit firm rotation
AFSPEC	Audit firm industry specialist
APSPEC	Audit partner industry specialist
AWCA	Abnormal working capital accruals
BUSY	Audit partner busyness
CA	Current accruals
DA	Discretionary accruals
EQCR	Engagement Quality Control Reviewer
FAP	Federation of Accounting Professions
FMAPR	First mandatory audit partner rotation
GCO	Going-concern audit opinion
IAASB	International Auditing and Assurance Standards Board
IAS	International Accounting Standards
ICAAT	Institute of Certified Accountants and Auditors of Thailand
IESBA	International Ethics Standards Board for Accountants
IFAC	International of Federation of Accountants
IFIAR	International Forum of Independent Audit Regulators
IFRS	International Financial Reporting Standards
IFRIC	International Financial Reporting Interpretations Committee
ISA	International Standards on Auditing
ISQC	International Standard on Quality Control
MAO	Modified audit opinion
MAPR	Mandatory audit partner rotation
NDA	Non-discretionary accruals
SIC	Standard Interpretations Committee
SOX	Sarbanes-Oxley Act 2002
SECT	Securities and Exchange Committee of Thailand
SET	Stock Exchange of Thailand
TA	Total accruals

TAS	Thai Accounting Standards
TFASB	Thailand Financial Accounting Standards Board
TFRS	Thai Financial Reporting Standards
TSA	Thai Standards on Auditing
TSQC	Thai Standard on Quality Control
VAPR	Voluntary audit partner rotation
VIF	Variance Inflation Factors

Chapter 1 Introduction

The thesis aims to investigate the effect of mandatory audit partner rotation (MAPR) on audit quality of listed companies that underwent three rotation periods from 2006 to 2017 in the Thai capital market. This chapter begins with Section 1.1 on the MAPR requirement in international settings and in Thailand context. After the Enron accounting scandal in 2002, MAPR has received considerable interest from both legislators and researchers as a measure that could improve audit quality. Thailand's regulators also imposed the requirement of MAPR in order to continuously improve audit quality after the financial crisis in 1997, Tom Yum Kung crisis in Thai capital market. Thailand context and the development of MAPR in Thai setting are also discussed in this section. Since then, research on the impact of MAPR on audit quality has been carried out in various countries. There is a gap in the research for developing markets, especially Thailand. This knowledge gap is the motivation for this thesis and the research questions discussed in Section 1.2. Section 1.3 provides the background information on Thailand and describes the overview of its history, economic and accounting environments. The thesis' contributions to audit quality and MAPR research are provided in Section 1.4 and the thesis' major findings are presented in Section 1.5. Finally, a more detailed description of the thesis' overall structure is provided in Section 1.6. In this thesis the terms lead audit partner, audit partner, engagement partner, and auditors are used interchangeably as terms that refer to the lead audit partner of an audit engagement team with significant responsibility for decision-making of the audit and the physical signing of the auditors' reports.

1.1 MAPR in an international setting, Thailand context and the requirement of MAPR in Thai capital market

This section provides a discussion of the development and requirement of MAPR in an international setting. Thailand context, Thai capital market and the development of MAPR requirement in Thailand are also discussed in this section.

1.1.1 MAPR in an international setting

The requirement of MAPR has been extensively debated and researched amid various accounting scandals and collapses in 2002 that involved international corporations such as Parmalat and ComROAD in Europe (Lee, 2015) and WorldCom and Enron in the U.S. (Firth, Rui, & Wu, 2012). Following on from these scandals, the role of auditors and the scope of auditing, as well as auditor independence and audit quality, were all criticised by different stakeholders (Firth et al., 2012; Harris, 2012; Lee, 2015; Stakebrand, 2016). In order to improve the accuracy and reliability of corporate disclosures, the U.S. Congress reformed various regulations for both the audit and capital markets including the introduction of MAPR through Section 203 of the Sarbanes-Oxley Act 2002 (SOX) (General Accounting Office, 2003; Harris, 2012) in 2002.

Several previous studies have found many factors that can impair auditor independence and, consequently, audit quality. For example, economic incentives and the length of the audit partner's term are significant audit quality impairment factors (Chen, Lin, & Lin, 2008; Chi, Huang, Liao, & Xie, 2009; Geiger & Raghunandan, 2002; Myers, Myers, & Omer, 2003). The close relationship between the auditor and the auditee arising from their long association may lead to a familiarity threat and presumably impair the audit partner's objectivity and independence (Carey & Simnett, 2006; Chi & Huang, 2005; Firth et al., 2012; Lennox, Wu, & Zhang, 2014). This over-familiarity with the client can be counteracted by the fresh view provided by the incoming audit partner; hence, the introduction MAPR in many jurisdictions.

MAPR limits the period over which audit services are provided to the same client (Harris, 2012; Kitiwong, 2014; Lee, 2015) and encourages a fresh perspective of the client. This enables the new audit partner to be more sceptical, more cautious about audit risks and, overall, encourages better audit quality in the market (Fargher, Lee, & Mande, 2008; Healey & Kim, 2003; Jennings, Pany, & Reckers, 2006; Lennox et al., 2014). Generally, MAPR is perceived to have a positive effect on audit quality (Firth et al., 2012; International Ethics Standards Board for Accountants [IESBA], 2012; Jennings et al., 2006; Matthews, 2012).

The findings from previous studies on the impact of MAPR on audit quality are varied and inconclusive. Many studies have found that MAPR results in the loss of client-specific knowledge accumulated by the outgoing audit partner (Geiger & Raghunandan, 2002). The need to obtain the same level of knowledge, such as the knowledge of a client's business and operations and the implications for audit risk, could be detrimental to audit quality (Chi et al., 2009; Litt, Sharma, Simpson, & Tanyi, 2014; Myers et al., 2003). Further, many previous studies have been undertaken in settings in which a lead audit partner's name is disclosed, such as China, Taiwan, South Korea and Australia (Carey & Simnett, 2006; Chi et al., 2009; Firth et al., 2012; Kwon, Lim, & Simnett, 2014), or in which the lead partner's name can be identified, such as the U.S. (Matthews, 2012). There is a conspicuous absence of explicit evidence of audit quality improvements following the requirement of a lead audit partner rotation in developing countries, including Thailand.

1.1.2 Thailand context and the requirement of MAPR in Thai capital market

Thailand context of this study

Thailand is in the Southeast Asia region. Historically, most of the countries in this region have been controlled and ruled by other developed countries. However, unlike these countries, Thailand has no history of colonisation and this is reflected in its economic environment and accounting regimes (Kitiwong, 2014). Thailand's rule of law is a combination of local code law and common law influenced by neighbouring countries (Central Intelligence Agency, 2015) and foreign investment. Thailand is perceived as an emerging code law market with a weak regulatory environment, weak investor protection rights, a bank-oriented financial system and an unsophisticated legal (or financial) regime (Ali & Hwang, 2000; Boonlert-U-Thai, Meek, & Nabar, 2006; Chayasombat, 2010; Iatridis, 2012; Leuz, Nanda, & Wysocki, 2003). Some of these characteristics undermine the quality of the capital market in Thailand (Ball, Robin, & Wu, 2003; Chayasombat, 2010) which in turn necessitate the adoption of international standards and requirements such as MAPR to improve Thai capital market credibility.

The listed companies in Thai capital market are important to Thailand's economy. The market capitalization of Thailand stock exchange in 2019 was 560 billion USD. This makes Thai capital market the second largest stock market in Southeast Asia. The major users of financial reports are foreign investors and local individuals using listed companies' financial statements to support their economic and financial decision-making (Stock Exchange of Thailand (SET), 2020).

In terms of the audit market, previous studies have shown that large audit firms (the Big 4) are associated with higher audit quality as compared to smaller audit firms. Not only do the Big 4 audit firms have better reputations and networks (DeAngelo, 1981b; Francis, 2004; Francis & Yu, 2009), they are also privileged in having in-house expertise and established systems and procedures (Francis, 2004; Lee, 2015). In Thailand, there is no significant difference in terms of audit market segmentation between the Big 4 and non-Big 4 audit firms (Pornupatham, 2006). Big 4 audit firms provide audit services to about 57 percent of listed companies on the Thai Stock Exchange while the remaining firms are serviced by non-Big 4 firms. This context is a further challenge to the MAPR requirement in effectively improving the audit quality in Thailand.

The requirement of MAPR in Thai capital market

The requirement of MAPR was introduced in Thailand a decade ago in order to conform to global standards such as the Sarbanes-Oxley Act 2002 that was introduced in the U.S. market (FAP, 2013a) and the Code of Ethics for professional accountants based on IESBA's 2012 Edition. The most significant developments in Thailand's accounting and auditing, including MAPR requirement, occurred in the late 1990s. The quality of Thai accounting and auditing standards, and corporate governance, were criticised at that time by international organisations such as the World Bank and the International Monetary Fund (IMF). The lack of appropriate standards has been seen as the main contributor to the 1997 financial crisis, known as the Tom Yum Kung crisis (Kuasirikun, 2005; Mitton, 2002). The World Bank pointed out at that time that Thailand urgently needed to improve its accounting standards and auditing standards. This led to a proposal for a new Accounting Act B.E. 2543 (2000) (Accounting Act) by the Ministry of Commerce, approved by the Thai Cabinet, which became effective in August 2000. This Accounting

Act established the responsibilities of accountants to prepare financial statements in compliance with Thai accounting standards. Further, Thai regulators continuously attempt to encourage improvements in accounting and auditing quality by implementing international standards and regulations including the MAPR requirement. While MAPR is primarily aimed at improving audit quality (Kitiwong, 2014; Phadungdet, 2014; Thapayom, 2012), the regulatory bodies also intended to ensure that the Thai capital market is at par with other countries by following international standards (FAP, 2013a).

In the Thai capital market, there are two main regulatory bodies associated with the requirement of MAPR. The Securities and Exchange Committee of Thailand (SECT) imposes the MAPR requirement through the notification of SECT reference number KorJor.39/2548 entitled Rules, Criteria and Procedures for Disclosure of Financial Status and Operating Results of Securities Issuing Companies (Item No. 20). This amends the notification of SECT reference number KorJor.40/2540 and KorJor.6/2546 (Item No. 13) entitled Rules, Criteria and Procedures for Disclosure of Financial Status and Operating Results of Securities Issuing Companies.

The MAPR requirements have a limit of five consecutive accounting years for the engagement of an audit partner in servicing listed companies. The cooling-off period is two years on rotation. This requirement became effective from 1 January 2006; that is, MAPR requirement in Thai market is at an individual partner level. Listed companies that had the same lead audit partner for five consecutive years or more in 2006 were required to change their lead audit partner. A lead audit partner has to be rotated to another lead partner and an incoming audit partner can be a partner within the same audit firm or can be rotated by a change of an audit firms. However, companies that could not comply with this requirement had to negotiate with the SECT on a case-by-case basis. In 2008, this requirement was made mandatory and all listed companies now have to comply with it. Thai listed companies can also voluntarily rotate their lead audit partner before the MAPR period. The 53 percent of all listed companies from 2006 to 2017 voluntarily rotated their lead audit partner and 47 percent of listed companies started to rotate their audit partners following the MAPR requirement. Listed companies that voluntarily rotate a lead audit

partner do so on average every 3 to 4 years. The requirement for a mandatory audit firm rotation has not been exercised in Thai setting.

In 2018, there were amendments[1] to MAPR regulation for the Thai capital market which is translated from the Code of Ethics for professional accountants based on IESBA's 2018 Edition. The notification of the Capital Market Supervisory Board ThorJor.44/2556 (Revised) and ThorJor.75/2561 (Amended) (Item No. 14) entitled Rules, Conditions and Procedures for Disclosure of Information Relating to Financial Status and Operating Result of Issuing Company, requires that the "key audit partner" shall not act as an engagement partner, an engagement quality control reviewer, or other key audit partner in an individual role or a combination of roles for a period of more than seven cumulative years (time-on period). The cooling-off period is five cumulative years. The terms and responsibilities of these auditors in auditing listed companies in Thai market are consistent with the international standards.

The Federation of Accounting Professions (FAP) has been instrumental in the introduction of lead audit partner rotation practices through the Auditors Act B.E. 2505 (1962) since 1962. Initially in 2004, the regulator imposed the Accounting Professions Act B.E. 2547 (2004) (the Act) and repealed the Auditors Act B.E. 2505 to legislate the accounting standards and auditing standards, including ethical requirements (Kitiwong, 2014; Phadungdet, 2014). However, this Act did not explicitly require a lead audit partner to be rotated. In 2013, when the FAP adopted the Code (FAP, 2013b), a periodic audit partner rotation was required to mitigate familiarity and self-interest threats between management and the auditor, promote greater auditor independence, and enhance audit quality (FAP, 2013b). By investigating listed companies in the Thai capital market, this thesis contributes to the literature on audit quality as a consequence of MAPR in a developing market. Table 1.1 presents the summary of the development of MAPR requirements in Thailand in the chronological order.

[1] These new amendments became effective from 1 January 2019 which is out of the scope of this thesis.

Table 1.1: Development of MAPR requirement in Thailand

Thailand Regulators	Notification/Act	Entitle	MAPR Requirement	MAPR effective date	Remark
FAP	Auditors Act B.E. 2505 (1962)	Auditors Act	Recommendation of a lead audit partner rotation	1962	
FAP	Accounting Professions Act B.E. 2547 (2004)	Accounting Professions Act	Recommendation of a lead audit partner rotation	2004	Repeal of the Auditors Act B.E. 2505
SECT	KorJor.39/2548 (2005)	Rules, Criteria and Procedures for Disclosure of Financial Status and Operating Results of Securities Issuing Companies	The lead audit partner has to rotate every five consecutive years and two year for cooling-off period	1 January 2006	Amendment of - KorJor.40/2540 (1997) - KorJor.6/2546 (2003)
FAP	Thailand Code of Ethics for professional accountants	The translation of the International Code of Ethics for professional accountants based on IESBA's 2012 Edition	Requirement of the MAPR	2013	
SECT	ThorJor.75/2561 (2018)	Rules, Conditions and Procedures for Disclosure of Information Relating to Financial Status and Operating Result of Issuing Company	The key audit partner has to rotate every seven years and five years for cooling-off period	1 January 2019	Amendment of - KorJor.39/2548 (2006) - ThorJor.44/2556 (2013)

This thesis focuses on audit quality as a consequence of MAPR in the Thai capital market. It was the aim of FAP and SECT that MAPR would encourage higher audit quality in the Thai capital market and improve the credibility of its capital market. This study explains the effect of MAPR by using agency theory and the IAASB's (2014) framework for audit quality. Agency theory explains the role of auditing and the auditor in relation to financial

statements' quality based on the principal-agent relationship. It also explains the need for auditor independence and audit quality by shareholders, which, in the case of MAPR, is facilitated by rotating the lead audit partner. However, there are also various factors that influence the effectiveness of MAPR, such as the regulatory environment. This is further explained by the framework of audit quality by IAASB (2014)[2].

Taken together, the characteristics of the Thai capital market and the Thai audit supply market are the motivations for this thesis on the effect of MAPR adoption on audit quality in Thailand. This is further discussed in the next section.

1.2 Motivations

There are three motivations for this study. First, there is a big gap in the literature on the impact of MAPR on audit quality in Thailand (Chayasombat, 2010; Kitiwong, 2014). Previous studies in the context of Thailand have not examined the audit quality of Thai listed companies subsequent to the introduction of the MAPR requirement. Furthermore, these prior studies included only the top 100 companies for a market capitalisation of the Thai market (SET100) (Pinijorachai, 2007; Thapayom, 2012) and therefore used only a small company segment (Chayasombat, 2010). For example, Phadungdet (2014) investigated the relationship between MAPR and earnings management (as a proxy for audit quality), but did not observe audit quality in the MAPR transition year. Another empirical study by Kitiwong (2014) examined the relationship between audit tenure and earnings management in Thailand, but did not specifically focus on the impact of MAPR on audit quality.

Second, the results from these Thai studies are also mixed. The study by Phadungdet (2014) showed that companies with MAPR had less earnings management than companies without audit partner rotation. On the other hand, the study by Pinijorachai

[2] Further explanation on agency theory and the framework for audit quality by IAASB (2014) is discussed in Chapter 2.

(2007) and Thapayom (2012) revealed contradictory findings. Only Kitiwong (2014) found that MAPR did improve audit quality in the Thai market but the results were not significant. Furthermore, these studies observed five and eight-year time periods which may not provide exhaustive evidence of the effectiveness of MAPR. Therefore, the findings of previous studies within the Thai context are inconclusive and further evidence is required to bridge that gap.

Third, as mentioned in Section 1.1, the uniqueness of Thailand's regulatory, economic and accounting regimes, make the country an interesting setting. In order to improve foreign investors' confidence through the expected increase in audit quality, Thai regulators have adopted the International Code of Ethics for professional accountants based on IESBA's 2012 Edition (the Code) (FAP, 2013b; World Bank Group, 2008). Globally, the Code is perceived as the best ethical practice guide. Section 290.150 of the Code requires Thai listed companies to rotate the key engagement auditor and this is aimed at promoting better quality auditing practices (FAP, 2013b). This requirement is critical in improving the weak reputation of Thailand's capital market and its unsophisticated accounting environment (Ball et al., 2003; Chayasombat, 2010). Compared to other countries, Thailand's market characteristics pose greater challenges to regulatory bodies in introducing and implementing MAPR. In capital markets such as Thailand's, it is unknown how audit quality improved, if at all, after MAPR was mandated. Therefore, the research question for this thesis is:

What is the impact of MAPR on the audit quality of listed companies in Thailand?

This thesis' results provide substantial evidence and go some way towards answering this question. In order to understand Thailand as the context for this thesis, the next section provides brief background information on Thailand's history and economic and accounting environment.

1.3 Study context - Thailand background information

Thailand has been chosen for this thesis because to date, the country has not been the subject of research in terms of the effectiveness of MAPR on audit quality. Thailand's economic and accounting regimes have been aligned with international accounting standards and other international accounting regulations (International Financial Reporting Standards [IFRS], 2016). Moreover, Thailand has a distinct economic and accounting environment and a smart economic policy (World Bank Group, 2016a). In addition, it has continuing economic growth (OECD Development Centre, 2016).

Historically, and prior to the industrial revolution in the early 20th century, the Thai economy was mainly based on agriculture (Hussey, 1993; Kuasirikun, 2005). Since then, the economy has rapidly grown, especially in the late 20th century (Hussey, 1993). Thailand's rapid industrialisation is mostly driven by the large number of foreign investments, in terms of loans and grants, as well as technical support from Western countries, mostly the U.S. and U.K. (Hussey, 1993; Kuasirikun, 2005). Foreign investments have indirectly pressured the accounting system and regulators to comply with international accounting standards so to sustain and attract further investment (Kuasirikun, 2005). Thailand's neighbouring countries were also fast paced in the adoption of the international accounting standards.

In order to elaborate on Thailand's economic and accounting environments, the country's colonisation, legal systems and business practices are discussed in Section 1.3.1. Thailand's accounting systems, accounting regulatory bodies, and listed companies' auditors are detailed in Section 1.3.2.

1.3.1 History of colonisation, legal systems and business practices in Thailand

Between the 18th and 19th centuries, almost all countries in Southeast Asia were colonised by European countries such as Great Britain and France, as well as Japan. Great Britain and France significantly dominated the region. They influenced and formed the legal

environments of the countries they colonised. The only country that escaped colonisation and control by foreign powers was Thailand (Angus-Leppan, 1997; Chayasombat, 2010; Ma, 1997). In Southeast Asia, colonisation resulted in two primary legal systems – the British Common Law and the French Code Law systems. The colonists also influenced these countries' economic and accounting regimes. Even though Thailand was never colonised, its legal system has been influenced by the British Common Law used in Thailand's neighboring countries (Boonlert-U-Thai et al., 2006; Leuz et al., 2003). There is, therefore, a significant regional influence on Thailand's regulatory regime, mainly through its membership of the Association of Southeast Asian Nations (ASEAN).

In Thailand, it is the government rather than individual investors that plays an important role in developing the capital market regulatory environment and its financial resources (Ball et al., 2003; Chayasombat, 2010). In Thailand, institutional investors such as government agencies and commercial banks tend to be major investors and financial resource funders as compared to individual investors (Ball et al., 2003). Thus, the Thai financial system is bank-oriented, with banks as the major funders of businesses (Ali & Hwang, 2000; Chayasombat, 2010).

Being dominated by government-controlled agencies and banks in the economy, Thailand has weaker investor protection regulations when compared with more developed markets such as the U.S. and Australia. As such, it is more likely that there is a higher level of earnings management in Thailand (Leuz et al., 2003) with weaker legal enforcement (Boonlert-U-Thai et al., 2006; Leuz et al., 2003).

In terms of business practices, Ma (1997) reports that the major shareholders of the financial institutions in Thailand are Chinese; that is, since Chinese immigration began over 100 years ago, Chinese business practices have played a major role in the Thai trading system. As a result, family businesses and personal relationships are quite dominant in Thai business practice (Ball et al., 2003; Chayasombat, 2010; Ma, 1997). For instance, personal communication with shareholders is preferred and financial reporting disclosure requirements are less emphasised (Ball et al., 2003).

There is a link between financial reporting of income and tax-based income in the tax regimes of the Thai market. Based on Thai tax law, corporate businesses are required to conform to Thai financial reporting and tax reporting. Most companies therefore prepare financial reports that are aligned with the requirements for tax accounting, especially when it comes to tax assessments, taking into consideration depreciation policies (Ball et al., 2003; Chayasombat, 2010; Ma, 1997). This distinctive accounting and business environment make Thailand an interesting setting for studying the change in audit quality after the introduction of the International Code of Ethics for accountants, including the MAPR requirement.

1.3.2 Thai accounting, accounting regulatory bodies, and listed companies' auditors

The first Thai accounting regulatory body was founded in 1948 upon approval from the National Culture Council, then the Accountant Association of Thailand (AAT). The AAT was formed by a small group of accountants who were motivated to start an organisation for the accounting professions. In 1975, the AAT was renamed the Institute of Certified Accountants and Auditors of Thailand (ICAAT), a self-regulated organisation of accountants and auditors (FAP, 2013a). The ICAAT regulated accounting practices and issued Thai Accounting Standards (TAS) based on the Auditor Act B.E. 2505 (1962). The ICAAT has been a member of the ASEAN Federation of Accounting (AFA) and the International Federation of Accountants (IFAC) since 1977.

In October of 2004, the Accounting Professions Act B.E. 2547 (2004) came into effect, repealing the Auditors Act B.E. 2505. The three main bodies under the Accounting Professions Act were established: the Accountants' Council; the Accounting Profession Association; and the Thailand Financial Accounting Standards Board (TFASB) (Benyasrisawat, 2011; Kuasirikun, 2005). The aim of the three different bodies was to enhance Thailand's accounting system and environments to an international standing in terms of accounting professional standards, professional qualities and ethics (Benyasrisawat, 2011).

In 2005, the FAP was established under the Accounting Professions Act B.E. 2547 (FAP, 2013a) in order to replace the ICAAT. The FAP is a self-regulatory body with the main objective of regulating accounting and auditing standards (Benyasrisawat, 2011; Chayasombat, 2010). FAP mandates the application of ethical and governance standards among the accounting professions. FAP has the authority to issue, suspend and revoke any accounting practitioner's license. FAP also monitors and assesses the audit quality of individual auditors through its review of auditors' files and working papers, while the SECT Accounting Supervision Department monitors the quality of audits undertaken by the listed companies' audit firms. The SECT Accounting Supervision Department is created by the SECT and it has been a member of the International Forum of Independent Audit Regulators (IFIAR) since 2010 (Kitiwong, 2014).

The FAP continuously attempts to enhance the quality of accounting and auditing regimes in Thailand by promoting conformity to international standards, regulations, and requirements, including international ethical requirements. The FAP translates the International Financial Reporting Standards (IFRS), International Accounting Standards (IAS), International Standards on Auditing (ISA), IFRIC Interpretations (IFRIC), SIC Interpretation (SIC) and IESBA's 2012 Edition (FAP, 2013b) into the Thai language (Klose & Sabangban, 2011). In 2012, the FAP, with the endorsement of the Oversight Committee on Accounting Profession under the Ministry of Commerce, promulgated a large number of IFRS-based Thai Financial Reporting Standards (TFRS) for listed companies. This also included Thai Accounting Standards (TAS) based on IAS, and Thai Standards on Auditing (TSA) based on the International Standards of Auditing (ISA). Under these Thai regulations, an audit partner who performs auditing in listed companies has to be accredited by the SECT (SECT, 2010).

In order to be a listed company's auditor, an audit firm and an individual audit partner have to fulfill certain SECT requirements; that is, an audit firm has to have at least five persons who are full-time Certified Public Accountants (CPA) (SECT, 2010). An audit firm is also required to have an audit quality control system that is in compliance with the Thai Standard on Quality Control 1 (TSQC1) (equivalent to the IFAC's International

Standard on Quality Control 1 (ISQC1)). This requirement has been enforced since 1 January 2014 with the aim of improving existing audit quality in Thailand (FAP, 2013a).

An individual audit partner of a listed company has to be a CPA, licensed by the FAP. He/she has to be a leader or a partner or someone in an equivalent position in an approved audit firm. He/she also has to be attached to only one approved audit firm, has to have at least 10 years' experience as an auditor, and should not have any prohibited qualities as prescribed by the SECT. In addition, an experienced auditor is usually an auditor who has been a signing audit partner for at least three years within the last five year period, and has been an engagement quality control reviewer (EQCR) for at least four years before filing an application for a licence. An approved auditor of the SECT has to have work experience in a reasonable sized firm/company and have a diversity of clients (SECT, 2015). Also, all individual auditors have to comply with the Accounting Professions Act 2547 B.E. (2004) imposed by the FAP in 2004. That Act sets up the accounting standards, the auditing standards, and the Code of Ethical Requirements (World Bank Group, 2008).

To enhance auditors' ethical standards and audit quality, the FAP translated and adopted the Code of Ethics for professional accountants based on IESBA's 2012 Edition (the Code) (FAP, 2013b). The objective of the Code is to provide guidelines for setting high quality ethical standards for professional accountants, including auditor independence, in order to enhance audit quality in the Thai market. The Code also addresses the independence requirement, including lead audit partner rotation, to achieve and maintain auditor independence. It is expected that the required rotation of a lead audit partner is to promote auditor independence and, thus, increase audit quality. As Thailand has also adopted an audit partner rotation requirement for the capital market, the next section describes the thesis' contribution to audit quality and MAPR research.

1.4 Thesis' contribution to audit quality and MAPR research

This thesis employs a quantitative methodology in order to examine audit quality improvements for companies listed on the Stock Exchange in Thailand (SET) following the implementation of MAPR. The thesis uses 12 years of observations over the period from 2006 to 2017. While the thesis mainly focuses on companies with MAPR, other companies that voluntarily rotated audit partners are also included for robustness (in Chapter 5, Section 5.5). Unlike previous studies in the Thai context which observed only one period of MAPR (Phadungdet, 2014; Thapayom, 2012), this thesis includes three periods of MAPR observations, namely 2006, 2011 and 2016. Consequently, the results provide more recent and more comprehensive evidence about the effects of MAPR on audit quality in a developing country and over a longer period of time.

This study examines the impact of a different number of MAPRs on audit quality so to specifically examine the effectiveness of multiple MAPR. There are three groups in the sample used in this study: listed companies having 1 MAPR; 2 MAPR; and 3 MAPR. This thesis also includes variables that have not been tested in previous Thai studies. For example, the audit firm size variable (i.e. Big 4 audit firms) and the audit firm and auditor attributes variables (i.e. an audit firm industry specialist, an audit partner industry specialist and an audit partner busyness), are introduced to the models used in this thesis. This thesis also compares the first MAPR (FMAPR) with the last preceding voluntary audit partner rotation (VAPR) for the same listed companies under the VAPR regime so to examine the immediate impact of MAPR on audit quality.

Additional analyses and sensitivity tests are conducted to test the robustness of the main results in this thesis. The interaction effects (i.e. the interaction of MAPR and audit firm size, the interaction of MAPR and listed company size) have not been observed in previous literature but are examined in this thesis. In summary, with the described research design, this thesis presents evidence of the effect of MAPR on audit quality in Thailand, a developing country. The major findings are outlined in the next section.

1.5 Thesis' major findings

The 12 years' observation of audit quality as a consequence of the three MAPR in Thai capital market did not show any significant improvements in the audit quality in Thailand. In addition, in this study, the association between audit quality and MAPR is found to be weak. These findings suggest that an incoming audit partner following MAPR who lacks client-specific knowledge is less likely to enhance audit quality, at least in the Thai market. The findings in this thesis support other prior studies in this area (Chi et al., 2009; Geiger & Raghunandan, 2002; Gipper, Hail, & Leuz, 2018; Lennox et al., 2014; Myers et al., 2003). The findings also imply that Thailand's unique economic and regulatory environment poses greater challenges compared to other countries. Further, the implementation of three MAPR periods is yet to reveal the benefits of having audit partners rotated. It seems that Thailand needs greater measures than MAPR to further promote auditor independence and audit quality. The significance of personal-based relationships in the Thai market, which is largely dominated by government-controlled institutional investors, and an audit market which is not dominated by the Big 4 audit firms, could be pervasive influences on audit quality, at least in the Thai context and during the period studied in this thesis. This also seems to suggest that a developing country such as Thailand requires a substantial period of time for audit quality to improve subsequent to the introduction of MAPR and that other factors might be influential in the success of MAPR implementation (Chen et al., 2008; Chi et al., 2009; Kwon et al., 2014; Siregar, Amarullah, Wibowo, & Anggraita, 2012; Suprapto & Suwardi, 2013).

In terms of the immediate effect of MAPR, the insignificant results support the notion that audit quality improvement is not instantaneous during the MAPR transition year. This could be due to the gradual learning curve of the new lead audit partner in a new client's environment (Daugherty, Dickins, Hatfield, & Higgs, 2012; Geiger & Raghunandan, 2002; Litt et al., 2014). The literature also suggests that despite rotation of the audit partner, if the same audit team members are maintained on the engagement, the use of the same procedures and previous working papers exceed the benefits of the fresh and critical view expected from the new audit partner; thus, rotation does not have an impact on audit quality (Lee, 2015; Monroe & Hossain, 2013).

At the audit firm level, the results reveal that there is no significant difference between Big 4 audit firms and non-Big 4 audit firms when it comes to the audit quality of listed companies having MAPR in the Thai market. Even though Big 4 audit firms are highly and well-resourced for audits (Litt et al., 2014; Pornupatham, 2006), audit quality does not seem to be significantly different from non-Big 4 auditors' quality in the MAPR transition year.

The audit firm industry specialists (AFSPEC) and audit partner industry specialists (APSPEC) do not significantly improve audit quality of companies having MAPR, at least in the Thai market. It seems that knowledge of clients' businesses and specific information about particular companies, is likely to be gained through the actual experience of undergoing an audit; thus, it may not be easy for these industry specialists to apply their prior audit experience to a new client in the MAPR transition year (Karjalainen, 2011; Sanders, Steward, & Bridges, 2009; Vera-Muñoz, Ho, & Chow, 2006; Zerni, 2012). Moreover, audit partner busyness (BUSY), or those partners who have a large number of clients, does not significantly impact on audit quality due to time constraints in providing sufficient audits for each client (Sundgren & Svanström, 2014).

In addition, the audit quality of the same Thai listed companies under the first mandatory audit partner rotation (FMAPR) is not significantly different from the last preceding voluntary audit partner rotation (VAPR) under the VAPR regime. This result seems to support the notion that audit quality may not immediately improve after the first adoption of MAPR. In this thesis, the 28 percent of listed companies that have FMAPR and VAPR also rotate their audit firm at the same time. It is possible that the new lead audit partner under the new audit firm may be less efficient at auditing at the beginning of engagement because of unfamiliarity with the client's operations (Kwon et al., 2014). In this way, an incoming audit partner may not easily mitigate the level of DA, and therefore it is less likely that audit quality increases under the MAPR regime, at least in the Thai setting.

The additional and sensitivity tests conducted in this thesis provide additional evidence on the impact of MAPR on audit quality under certain conditions. By comparison, the results of the additional tests in this study show that only listed companies with three

MAPRs are associated with higher audit quality, in terms of limiting income-increasing accruals. This result seems to suggest that the benefits of having MAPR take time to accrue, as collective knowledge and experience of the various participants involved in the auditing process are accumulated. As knowledge and experience progresses with the MAPR periods, the higher the expected quality of financial reporting; thus, subsequently the audit quality is expected to increase too. Prior experience with audit quality (Lanen, Anderson, & Maher, 2017) showed that it did improve with rotating the lead audit partner and following MAPR (Chi et al., 2009; Myers et al., 2003).

The audit quality of the companies with three MAPRs is also relatively higher when audited by the Big 4 audit firms. Big 4 audit firms are known to have better resources, firm policies and procedures in their methodology. As such, only over a long period of time, those resources might be very useful to the incoming lead audit partner in dealing with a new client's environment when a new audit partner does not have much of the specific client's knowledge, unlike the accumulated client knowledge held by the outgoing audit partner. Lastly, in this thesis, only larger listed companies with three MAPRs have higher audit quality. Larger companies, in general, are better resourced, financially and non-financially more stable, and have well-established accounting systems that can respond very quickly to the requirements needed following MAPR. These companies are likely to adapt faster and better based on their previous MAPR experience compared to smaller companies (Lanen et al., 2017).

Overall, the main finding here is that MAPR does not improve audit quality in the Thai market. Although not significant, the findings suggest that the larger listed companies seemed to benefit from having three MAPRs, more so if audited by the Big 4 audit firms. This indicates that for audit quality to be improved, MAPR has to be exercised over a longer period of time so that the knowledge and experience following MAPR is accumulated by the participants involved (the audited companies and the audit firms). Until the audited companies and the audit firms are better resourced and faster at responding to the requirements needed by MAPR, audit quality might not be achieved as expected. Factors at the macro level, such as the characteristics of the country's economic and accounting environment, could further impede the immediate effect of MAPR.

Nonetheless, these findings can only be inferred in the Thai context and remain as limitations of this thesis. These limitations provide opportunities for future studies to explore different settings.

The next section discusses the overall structure of this thesis in more detail.

1.6 Structure of the thesis

This thesis consists of six chapters. Chapter 1 is an introduction to the study, discussing the MAPR requirements in an international setting, the Thai market characteristics, and the motivations for the thesis. The motivations form the research question pursued in this thesis. An overview of Thailand's history of colonisation, legal systems and business practices is also provided in Chapter 1. The chapter also describes the Thai accounting regulations and regulatory bodies, the listed companies' auditors and the Thai audit market. Finally, the research design and a discussion of the MAPR requirements in Thailand is provided. This chapter also summarizes the major findings of the study.

The following two chapters, Chapter 2 and Chapter 3, discuss the research background to the thesis. Chapter 2 explains the theory and the demand for audit. A theoretical framework used in this study to contextualise the need for audit quality and the MAPR requirement is discussed. The definition of audit quality follows the seminal study by DeAngelo (1981b) which emphasises auditor independence. Then, Chapter 2 considers other factors that might impact upon audit quality improvements based on the International Auditing and Assurance Standards Board (IAASB) 2014's audit quality framework. Informed by the theory and the audit quality framework, the conceptual framework specific to this study is developed. Chapter 3 reviews the relevant literature related to audit quality as a consequence of MAPR. This includes literature on various influencing factors which have been tested in previous studies. Based on the literature review and guided by the research question, hypotheses on the MAPR and audit quality are outlined.

Chapter 4 begins with an explanation of the measurement of audit quality in the literature and the model used in the study. The model was developed by Kothari et al. (2005) and has been widely used in various settings exploring audit quality following MAPR (Chi et al., 2009; Kwon et al., 2014; Litt et al., 2014). The financial statements, including the auditor's report, are used to collect financial and non-financial information for this thesis. Sample selection is reported in the final part of Chapter 4.

Chapter 5 provides the analysis section of the thesis. The chapter reports statistical results from regression analysis, the findings of the thesis and analyses the association between audit quality and MAPR in the Thai market. The analysis is based on the 12 year period used in this study, incorporating the three MAPRs for the period from 2006 to 2017. The additional analyses and sensitivity tests on the impact of MAPR on audit quality are presented in the final part of this chapter.

The final part of the thesis, Chapter 6, concludes the study. This chapter revisits the motivations for the study, including the research question, hypotheses and key findings. Based on the results, this chapter proposes a modified version of the 2014 IAASB audit quality framework. This proposed audit quality framework is based on the study's results which are potentially useful to regulators in similar settings to Thailand. The contributions and limitations of the thesis are outlined in Chapter 6, followed by the wider implications of the study as outlined in the final section of Chapter 6.

Chapter 2 Theoretical framework, audit quality definition and conceptual framework

This chapter lays out the theoretical framework, definition of audit quality and the conceptual framework of this thesis in regard to the MAPR requirement and audit quality. This chapter starts with Section 2.1 which describes agency theory. Agency theory is used to understand the role of the principal (shareholders) – agent (management) relationship. Under agency theory, an agency cost arises from information asymmetry between the shareholders and management, which induces the need for the audit and an auditor. An auditor is an independent party who performs an audit of the financial statements and provides an opinion on the truth and fairness of the financial position of the entities audited. In this role, the auditors are often expected by the shareholders to have an indirect monitoring role over management; thus, it is critical for the auditor to maintain his/her independence in order to provide higher quality audit services. The definition of audit quality and the association between audit quality and auditor independence are discussed in Section 2.2. Section 2.3 describes the audit quality framework that incorporates the elements that are fundamental to audit quality in the market. The key determinants of audit quality that relate to the MAPR requirement are also discussed in this section. Section 2.4 then develops the thesis' conceptual framework. The last section, Section 2.5, provides the summary and conclusion of this chapter.

2.1 Agency theory

This section provides a discussion leading to the theoretical framework used in the thesis. There are three main theories that explain the demand for audits: information hypothesis; insurance hypothesis; and agency theory (Jensen & Meckling, 1976; Leung, Coram, Cooper, & Richardson, 2015; Moroney, Campbell, & Hamilton, 2014).

The information hypothesis is predominantly used to explain the usefulness of financial information audited by the auditor to support users' investment, such as to hold or to sell investors' company shares, or whether to lend money to companies by banks and lenders (Chayasombat, 2010; Hay & Cordery, 2018; Leung et al., 2015; Moroney et al., 2014; Wallace, 1980; Watts & Zimmerman, 1986). For example, the study by Chayasombat (2010) uses the information hypothesis to explain the role of lenders in evaluating small companies' financial performance and related decision-making in the Thai market. The information hypothesis is more relevant to the understanding of the demand for audit quality for financial decision-making. It is less likely to be useful in explaining the relationship between audit quality and the auditor in relation to MAPR.

The insurance hypothesis theory is typically used to describe investors' ability to recover losses that result from relying on audited financial statements that contain material misstatements (Brown, Shu, Soo, & Trompeter, 2013; Hay & Cordery, 2018; Hillison & Pacini, 2004; Moroney et al., 2014). For example, the study by Brown et al. (2013) and Hay and Cordery (2018) suggests that investors tend to sue auditors should they suffer losses from investment failures. In this way, the auditor is likely to provide higher audit quality in order to avoid legal action by investors. However, these previous studies do not emphasise the need and the role of an auditor within an MAPR environment.

Last, but not least, agency theory has been used to explain the demand for audits and the need for auditors in a situation where there is a separation of ownership and control in companies (Leung et al., 2015). According to agency theory, a company consists of a nexus of contracts between shareholders (the principal) and the firm's management (the agent). The principal delegates authorities and duties to the agent through different contracts, with the objective of maximising the principal's wealth. This relationship is described as an agency relationship. This theory forms the foundation of this thesis' theoretical framework, consistent with prior MAPR related studies (Kitiwong, 2014; Lee, 2015; Stakebrand, 2016).

The agency theory developed by Jensen and Meckling (1976) has been dominant in the audit quality literature. For example, recent studies by Otieno (2014) and Stakebrand (2016) use agency theory to examine the relationship between audit quality and audit rotation. Other studies use it to scrutinise the association between audit quality and long audit tenure, such as those by Ahmad (2012), Chayasombat (2010), Kitiwong (2014) and Lee (2015).

Agency theory assumes that the principal and the agent are driven by the need to maximise their self-interests and that these interests are incompatible, which is known as the agency problem (Deegan, 2014; Stakebrand, 2016; Watts & Zimmerman, 1986). Theoretically, the agent has to manage the company by aligning their interests with the principal's interests (Chayasombat, 2010). The agent also has to deliver all relevant information to the principal and receive remuneration based on their performance. Since the agent has more information than the principal, and the principal cannot access all the available information, information asymmetry arises. This information asymmetry increases the agency costs to the principal (Chayasombat, 2010; Deegan, 2014; Stakebrand, 2016; Watts & Zimmerman, 1983).

In order to reduce the likelihood of increased agency costs and the possibility that the agents are not performing optimally, the principal engages the auditor as part of the monitoring process (Matoke & Omwenga, 2016; Messier, Glover, & Prawitt, 2008). As such, auditing is seen as having the potential to align the agent's interests with the shareholders' interests (Jensen & Meckling, 1976). In most cases, an auditor as an independent party can decrease information asymmetry through the auditing of the information contained in the financial statements prepared by the company's management (Moroney et al., 2014). The audit outcomes include a reasonable assurance about the reliability and credibility of the company's financial statements (Dandago & Zamro, 2013; Messier et al., 2008; Stakebrand, 2016), which is critical to the shareholders; thus, the auditor is the missing link between management and the users who rely on the financial information of audited financial statements (General Accounting Office, 2003). The relationship between the principal and the agent, including

the role of auditing and an auditor as adapted from Messier et al. (2008), is illustrated in Figure 2.1.

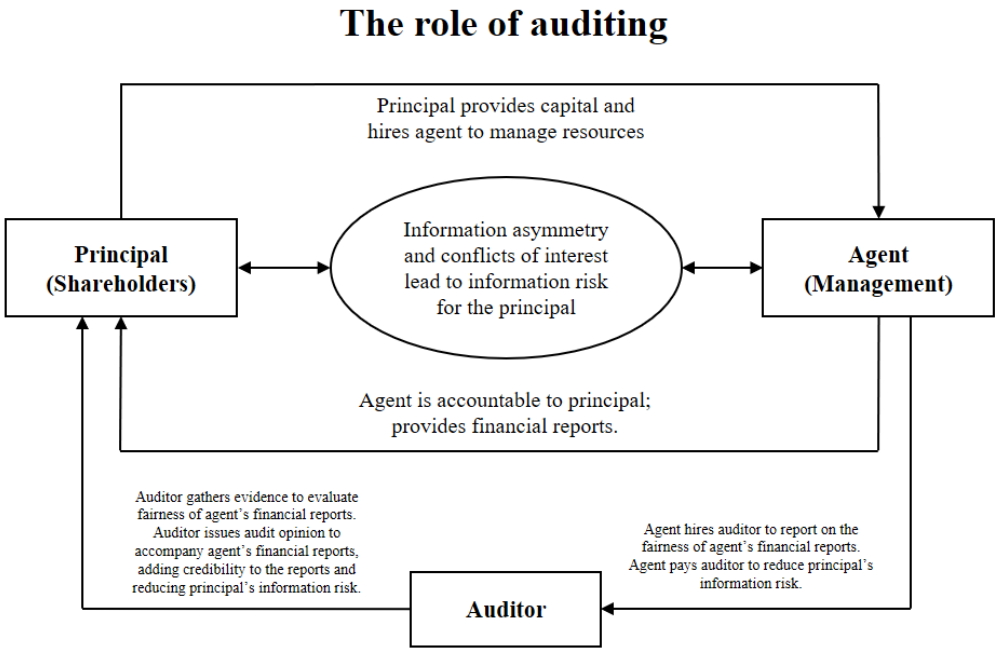


Figure 2.1: Overview of the principal-agent relationship leading to the demand for auditing adapted from Messier et al. (2008)

Previous studies have also pointed out that an independent auditor is likely to be driven by his/her self-interest in maximising their wealth through audit fees (Institute of Chartered Accountants of England and Wales 2005). Stakebrand (2016) asserts that it is possible that an auditor may be incentivised by the need to secure current and future engagements; thus, they are likely to act in the interests of the company's management instead. Even though the appointment of the auditors is made by the shareholders, it is made upon the recommendation of the company's management – in other words, the auditor has to be independent from management who prepared the financial statements to be audited. However, at the same time the auditor has to acknowledge that his/her appointment depends on the recommendation by management, who also pay the audit fees. This unique relationship leads to a concern about the auditor's objectivity and independence. In this long tenure relationship, self-interest and familiarity threats can impair the auditor's scepticism and objectivity.

In conclusion, agency theory based on the principal-agent relationship explains well the need for audit quality and the critical role of the auditor in upholding shareholders' interests. This theory also infers the need for an auditor to be independent in the quest to minimise the information asymmetry between the principal and the agent. In addition, the controversial relationship between the auditor and management explains the introduction of MAPR in the capital markets, which is the main focus of this thesis. Agency theory forms the basis of the theoretical framework of this thesis and views MAPR as a vital component in improving audit quality, promoting auditor independence and mitigating information asymmetry. The next section provides a discussion that links audit quality, auditor independence and the MAPR requirement, as well as the association between audit quality and audit independence through MAPR.

2.2 Audit quality, auditor independence and the MAPR requirement

Audit quality is critical to the users who rely on audited financial statements. However, the determinants of audit quality are complex and multi-faceted (Francis, 2011; Hay, 2015; Kitiwong, 2014; Löfving & Widenius, 2016). Since 1981, many studies, such as those by Watts and Zimmerman (1986) and Francis (2011), have attempted to conceptualise, define, observe, and measure audit quality's dimensions (Wooten, 2003). Audit quality is contextual and, as such, the research and practice involved with audit quality is still evolving.

There are many ways to define audit quality depending on the objectives of the study (Chayasombat, 2010). With the aim of investigating audit quality following MAPR, this thesis follows a well-established definition of audit quality by DeAngelo (1981b), whose seminal study is consistent with other similar and later studies (Chi et al., 2009; Lee, 2015; Pornupatham, 2006; Stakebrand, 2016). The study by DeAngelo (1981b) established that "the quality of audit services is defined to be the market-assessed joint probability that a given auditor will both (a) discover a breach in the client's accounting system, and (b) report the breach" (p.186). This definition by components relates to auditor competency and auditor independence, respectively (Hay, 2015), which is the main emphasis of this thesis.

Auditor independence, on the other hand, is the cornerstone of the audit profession and is closely associated with audit quality (Brooks, 2011; Kitiwong, 2014; Ye, Carson, & Simnett, 2011). As emphasised by the International Ethics Standards Board for Accountants (IESBA) (2012), an auditor needs to be independent, both in mind and in appearance, to provide the auditor's opinion on companies' financial statements. Being independent means the auditors are without bias, conflict of interest, or other undue influencing factors.

Nonetheless, there are many different circumstances that would create threats to auditor independence, including familiarity and self-interest threats (IESBA, 2012). The familiarity threat stems from the audit tenure where an auditor may be employed by the same client for a long period of time. Audit tenure forms a close relationship between the client and the audit partner instead of a professional one (Chayasombat, 2010; Tepalagul & Lin, 2015); that is, the auditor audits the financial statements that are prepared by management, while at the same time the auditor has the knowledge that his/her appointment depends on management's recommendation, the same management that pays the audit fees. The audit partners' incentives, therefore, which are manifested in ongoing audit fees, create self-interest threats. Both familiarity and self-interest threats may impair auditors' objectivity and therefore impair auditor independence. When independence is compromised, an auditor is less likely to investigate and report misstatements, which adversely influences the audit quality and ultimately the quality of financial statements. In other words, the lower the degree of auditor independence, the lower the likely quality of the audit services (Lee, 2015; Postma, 2016).

In order to strengthen auditor independence and improve the accuracy and reliability of corporate disclosures, the U.S. Congress was the first to reform various regulations of both the audit and capital markets by introducing the MAPR requirement through section 203 of the Sarbanes-Oxley Act 2002 (SOX) (General Accounting Office, 2003; Harris, 2012). Since then, MAPR has been perceived as a safeguard to minimise threats to independence, at least to an acceptable level (IESBA, 2012). In general, audit partner rotation aims to encourage auditor independence by shortening the relationship between a lead audit partner and management (Chen et al., 2008; Myers et al., 2003), with the

view that this will improve audit quality (Carey & Simnett, 2006; Chi & Huang, 2005; Firth et al., 2012). An opposing argument is that the rotation results in an incoming audit partner that lacks client-specific knowledge to lead the audit and that this leads to lower audit quality (Bedard & Johnstone, 2010; Chi et al., 2009; Chi, Myers, Omer, & Xie, 2017; Geiger & Raghunandan, 2002; Myers et al., 2003). The evidence is inconclusive about the impact of the lead audit partner rotation on audit quality. Indeed, more evidence of the effects of MAPR is needed. Many countries worldwide have started to adopt the MAPR requirement into their auditing regime, especially developing countries.

Most of the prior studies observing the impact of MAPR on audit quality have researched MAPR in the developed markets, for example, the U.S. market (Johnson, Khurana, & Raynolds, 2002; Lim & Tan, 2010; Litt et al., 2014; Matthews, 2012; Myers et al., 2003), the Australian market (Arthur, Endrawes, & Ho, 2017; Carey & Simnett, 2006; Fargher et al., 2008; Monroe & Hossain, 2013), and the Italian market (Cameran, Francis, Marra, & Pettinicchio, 2015; Cameran, Prencipe, & Trombetta, 2016). There are a limited number of studies on this topic that have researched developing markets. To date, the developing market studies include the Chinese market (Firth et al., 2012; Lennox et al., 2014), the Taiwanese market (Chi & Huang, 2005; Chi et al., 2009), and the Korean market (Kwon et al., 2014). This thesis therefore provides valuable additional evidence of the impact of MAPR on audit quality in a developing market, Thailand.

There are other determinants associated with improvements in audit quality under the MAPR environment, such as the auditor's attributes, the communication between stakeholders, and the laws and regulations relating to financial reporting (Francis, 2011; Kitiwong, 2014; Stakebrand, 2016). As such, key determinants of audit quality based on the IAASB (2014) framework for audit quality are discussed in the next section.

2.3 Audit quality framework

Audit quality is driven by many factors (Francis, 2011; Kitiwong, 2014; Stakebrand, 2016). The International Auditing and Assurance Standards Board (IAASB) 2014 framework has been used, broadly, as a guideline to understand the multiple drivers of audit quality (IAASB, 2014). The objectives of the IAASB's (2014) audit quality framework are to highlight the key elements which are critical to increase audit quality, encourage the key stakeholders of audits to search for ways to improve audit quality, and facilitate communications between the key stakeholders on audit quality (IAASB, 2014). This framework includes a wide range of factors that potentially have an impact on audit quality (Carson, 2014; Kitiwong, 2014; Stakebrand, 2016). Conceptually, the term 'audit quality' has a different meaning for different groups of stakeholders, depending on their objectives (Catanach Jr. & Walker, 1999; Kitiwong, 2014). Thus, an understanding of these different users' expectations and the factors relevant to audit quality is important (IAASB, 2014). The IAASB's audit quality framework is depicted in Figure 2.2.

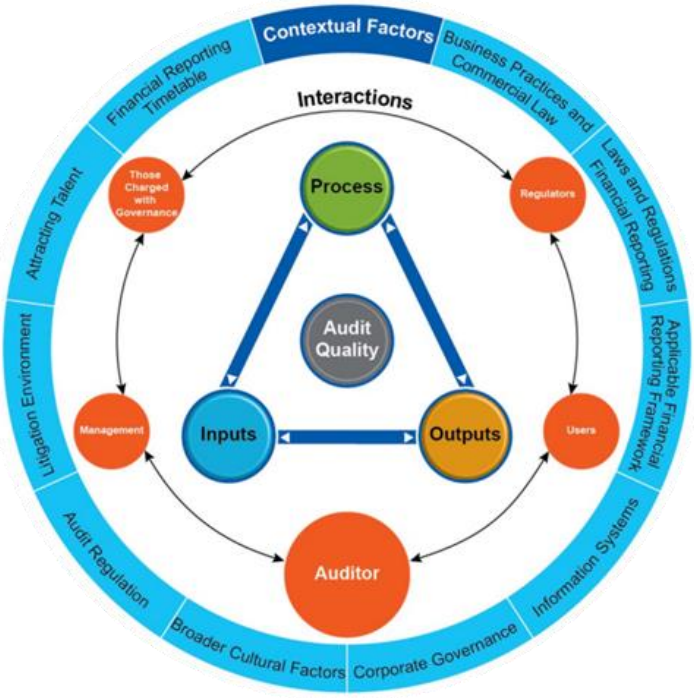


Figure 2.2: A framework for audit quality by the IAASB (2014)

As shown in Figure 2.2, the framework has five elements of audit quality: input, process, output, key interactions supply chain, and contextual factors. These five elements are required to be applied at three levels – the audit engagement level, the audit firm level, and the national level – and they are related to promoting audit quality. In the Thai context, the professional accounting body, the Federation of Accounting Professionals (FAP), makes it mandatory for Thai listed companies to adopt this IAASB 2014 audit quality framework with the aim of encouraging audit quality. This framework has been in place in Thailand since 2014 (FAP, 2014).

The five key elements of audit quality based on the IAASB 2014 audit quality framework are discussed in more detail in the following subsections.

2.3.1 Input factors

The input factors of the IAASB 2014 framework of audit quality refer to the values, ethics and attitudes of an individual auditor. These personal attributes include their knowledge, skills and experience and sufficient time needed to complete the audit work, which is likely to promote a higher audit quality (IAASB, 2014). For example, a lead partner (as well as an engagement team) is required to comply with ethical requirements and exhibit objectivity and integrity. In addition, the audit team members and audit partners have to maintain professional scepticism. By encouraging these input factors, audit quality is likely to improve (IAASB, 2014).

A number of prior studies have investigated the input factors and their impact on audit quality in developing countries, for example, the study by Karacaer, Gohar, Aygun, and Sayin (2009). They investigate the role of audit partners' values in the ethical decision-making processes of Pakistani and Turkish professional auditors. Other studies by Kitiwong (2014) and Pornupatham (2006) investigate audit partners' attitudes about audit quality in Southeast Asian countries and Thailand, respectively. However, these research studies have not been performed within the MAPR requirement conditions.

The knowledge, skills and experience of a lead audit partner that relate to MAPR have been examined in some prior studies. For example, Arthur et al. (2017) and Nagy (2012), both evaluate the effect on audit quality of a new lead audit partner who is an industry specialist, following MAPR. Further, a study by Cameran, Ditillo, and Pettinicchio (2017) examines the association between the audit team members' attributes, such as common educational background, after auditor rotation and audit quality.

The input factors also include auditor independence. Auditor independence is required to safeguard an individual auditor from influences such as self-interest and familiarity threats that may compromise professional judgments and potentially impair audit quality (IAASB, 2014). This is consistent with the explanation of agency theory in Section 2.1. In order to improve audit quality, MAPR is imposed so to limit the threats to the auditor's independence (IAASB, 2014) as per Section 2.2. Prior studies support the notion that auditor independence is an influencing factor on audit quality within the MAPR environment (Carey & Simnett, 2006; Chi & Huang, 2005; Dopuch, King, & Schwartz, 2001; Firth et al., 2012; Lennox et al., 2014).

2.3.2 Process factors

Process factors refer to the processes involved in the performance of the auditing by the lead audit partner and the audit team members. The engagement team members are expected to perform the audit in accordance with their audit firm's quality control procedures, laws, regulations and applicable standards (IAASB, 2014), with the main responsibility of quality control shouldered by the senior audit team members who are more experienced. The audit process usually involves the use of information technology, such as the use of computer-assisted audit techniques, while performing their audits. Regardless, the audit firms' quality control procedures must also be in compliance with the IAASB's ISQC1 on the continuous development of the audit methodology (IAASB, 2014).

There are very few studies that investigate audit processes. One study by Sutton (1993) evaluates the key factors by conducting a brainstorming experiment. Sutton (1993) suggests that the understanding of clients' internal systems and the audit team's expertise can influence the quality of the audit process and quality. However, Sutton (1993) study was not conducted in a real setting of audit fieldwork. Similarly, Kitiwong (2014) states that it is difficult to gain access to real audit fieldwork for research. Therefore, the majority of the studies on process factors use ex-post data such as financial statements and an auditor's opinion. As such, the process of auditing can only be evaluated post-audit due to the inaccessibility of the actual audit process (Kitiwong, 2014). In addition, prior studies that observe audit processes and audit quality were generally not conducted within the conditions of the MAPR regime.

2.3.3 Output factors

The outputs of audit quality are generally in the form of reports. The reports are from: the auditor, the audit firm, and the entity and audit regulators (IAASB, 2014). Previous studies that investigated the change in audit quality following audit partner rotation employed different output factors, such as audited financial statements as well as an auditor's opinion, to evaluate the effectiveness of MAPR in various settings. An audit opinion, which is contained in the audit report, gives users confidence about the audited financial statements (IAASB, 2014) and is helpful to various stakeholders (Kitiwong, 2014). The value, timeliness and transparency of the audit and the annual reports are deemed to evidence increased audit quality if they contain useful information for the financial statements users. For example, in 2016, FAP established the requirement of communicating Key Audit Matters in the auditor's report in order to communicate and provide additional information for users to assist them to better understand financial reporting process and audit report (Kitiwong & Srijunpetch, 2019). Key Audit Matters are therefore both evidence of and the contributor to improvements in audit quality.

Nonetheless, it is difficult to measure audit quality directly from an audit opinion. Further, audit opinions seldom change and even if they do, for example, from a modified audit opinion to an unmodified opinion, this does not necessarily mean there is a change to audit quality, as audit quality could be high when either of those audit opinions is issued. Previous studies that have used an auditor's opinion, such as a modified audit opinion on a going-concern basis as a proxy of audit quality, include: in the U.S. market (Geiger & Raghunandan, 2002), in the Australian market (Carey & Simnett, 2006; Monroe & Hossain, 2013), and in the European market (Lee, 2015). These prior studies concentrate on financially distressed and bankrupt companies (Carey & Simnett, 2006; Geiger & Raghunandan, 2002; Monroe & Hossain, 2013) that are likely to receive modified audit opinions (Geiger & Raghunandan, 2002). However, financially stressed companies are not the focus of this thesis and are therefore not used in studying audit quality in this thesis.

Audit quality has also been considered from the output point of view through financial statements quality. Studies which use audited financial statements quality as a result of the lead audit partner's rotation include studies on the U.S. market (Litt et al., 2014; Myers et al., 2003), the Australian market (Arthur et al., 2017; Carey & Simnett, 2006), and the Taiwanese market (Chen et al., 2008; Chi & Huang, 2005; Chi et al., 2009). This thesis defines audit quality in accordance with DeAngelo's (1981b) definition, as an auditor's ability to detect material misstatements in companies' financial statements (Arthur et al., 2017; Kitiwong, 2014; Myers et al., 2003). In that sense, the audited financial statements quality is expected to be a reflection of the quality of the audit.

As such, following previous studies, the expected outcome of this thesis is to observe the audit quality improvement or decline as a consequence of MAPR in the Thai market. This is measured by changes in the quality of financial statements following the IAASB's audit quality conceptual framework.

2.3.4 Key interactions within the financial reporting supply chain

Key interactions among the key stakeholders are also an important element of the 2014 IAASB audit quality framework. Key interactions within the financial reporting supply chain are effective interactions among the key stakeholders. Key stakeholders of the audit are: the auditor (the engagement members), management, those charged with governance, users, and regulators (IAASB, 2014). These interactions can be in many forms, such as formal and informal communications, discussion, and cooperation, including attendance at meetings, and the sharing of information. The communication among key stakeholders encourages audit quality by sharing information on different aspects of the auditing process and the key stakeholders' expectations about the company's performance reports.

Many factors influence the interactions between the lead audit partner and other stakeholders in an audit in a variety of ways. One of those factors is the practice of lead audit partner rotation. Previous studies observed various interaction factors when examining audit quality changes related to MAPR, via users' opinions (Jennings et al., 2006), and audit partners' opinions (Daugherty et al., 2012). The study by Imhoff Jr (2003) focused on the relationship between regulators, management, and the auditor through an audit partner rotation. Another study by Hossain, Monroe, Wilson, and Jubb (2016) looks at the interaction between the audit committee, audit partner and audit quality. Following the MAPR requirement, the relationship between the auditor and management needs to develop (Bobek, Daugherty, & Radtke, 2012). This is because an incoming audit partner needs to gain information about the client's business operations from management in order to assist them to perform audits efficiently, especially in the transition year. Moreover, a new lead audit partner needs to develop the new relationship and establish effective communication within the audit team to have benefits for the audit process and enhance audit quality (Ballinger & Schoorman, 2007). Thus, key interactions between an auditor and regulators, an auditor and management, and an auditor and the audit team members, are expected to be affected by the MAPR requirement.

2.3.5 Contextual factors

Contextual factors are described as those having the potential to impact on financial reporting quality and, in that way impact on audit quality (IAASB, 2014). Contextual factors are the environment of financial reporting and auditing, such as laws and regulations relating to financial reporting and auditing regulations (IAASB, 2014). Further, contextual factors vary from country to country in terms of business practices and commercial laws, applicable to financial reporting, corporate governances, and information systems leading to an expected different level of audit quality (IAASB, 2014). For example, Common Law countries, such as the U.S. and the U.K., are generally perceived to have strong economic environments that encourage a higher quality of financial reporting compared to Code Law countries, such as France and Italy with an expected lower level of quality of financial reporting (Ball et al., 2003; Barth, Landsman, & Lang, 2008). In terms of corporate governance, previous studies have found that good corporate governance attributes, incorporating gender diversity and higher outside ownership concentration, are related to higher audit quality (García-Meca & Sánchez-Ballesta, 2009; Mitton, 2002). In Thailand, the MAPR requirement is imposed by regulators, which directly affects the environment for audit quality; thus, this thesis places the MAPR requirement as a contextual factor impacting on audit quality in the Thai capital market.

Previous research has been conducted that considers the MAPR requirement as a contextual factor that increases audit quality in various sized financial and audit markets, in the U.S. (Geiger & Raghunandan, 2002; Jennings et al., 2006; Litt et al., 2014; Myers et al., 2003), Australia (Carey & Simnett, 2006; Ryken, Radich, & Fargher, 2007; Stewart, Kent, & Routledge, 2016), South Korea (Kwon, Lim, & Simnett, 2010; Kwon et al., 2014), and China (Bandyopadhyay, Chen, & Yu, 2014; Firth et al., 2012; Lennox et al., 2014). Even though contextual factors are likely to encourage an environment of audit quality in that market, results on the impact of MAPR on audit quality, through the consideration of contextual factors, are inconclusive. This thesis investigates the MAPR requirement in the Thai market, a market with both common law and code law features, to add more insights to the audit quality literature. Following prior studies and the IAASB

framework for audit quality (the MAPR requirement), the MAPR as the contextual factor is included in the conceptual framework of this study.

In conclusion, the IAASB 2014 audit quality framework and prior studies in relation to the MAPR requirement highlight relevant factors that affect an environment for audit quality. The connections amongst those relevant factors help develop the conceptual framework of this thesis as described in more detail in the next section.

2.4 Conceptual framework in the Thai setting

The conceptual framework of this thesis aims to explain the potential effectiveness of MAPR on audit quality by incorporating determinants or elements of the 2014 IAASB audit quality framework as significant factors for audit quality when considering the impact of MAPR in the Thai setting. Together with the literature, this thesis focuses on four factors which are considered as the key elements of audit quality in Thailand's MAPR setting.

The first input factor is referred to as auditor independence, which is an important impacting factor on audit quality as a consequence of the MAPR requirement in many settings (Firth et al., 2012; Lennox et al., 2014; Matthews, 2012; Tepalagul & Lin, 2015), including the Thai market (Phadungdet, 2014; Thapayom, 2012). As discussed in Section 2.2, the MAPR requirement is likely to mitigate the familiarity and self-interest threats that stem from a long audit partner tenure. The periodic rotation of the lead audit partner encourages auditor independence by shortening the audit partner tenure, which potentially improves audit quality (Fargher et al., 2008; Firth et al., 2012; Healey & Kim, 2003; Lennox et al., 2014).

The second element of audit quality in this thesis' conceptual framework is the output factor that refers to financial statements quality as prepared by management to provide useful information to the shareholders, and as a consequence of the adequate quality of an audit. According to the audit quality definition used in this thesis (DeAngelo, 1981b), financial statements quality is expected to be a reflection of the quality of the audit enhanced by the MAPR requirement.

The third element of audit quality in this thesis' conceptual framework is the key interactions during the audit process. These are the relationships and the communication among the key stakeholders (i.e. the auditor, management, those charged with governance, users and regulators) (IAASB, 2014) in an audit. Prior studies describe the interactions between the auditor and the listed companies' audit committee (Hossain et al., 2016), and the interactions between the auditor and management (Bobek et al., 2012).

One of the contextual factors in the IAASB framework referred to in this thesis is the MAPR requirement by Thai regulators as part of an environment of financial reporting and auditing that potentially impacts on audit quality (IAASB, 2014). MAPR is expected to increase auditor independence and improve the audit quality (Firth et al., 2012; Healey & Kim, 2003; Lennox et al., 2014).

The details of audit processes in the IAASB framework as process factors are generally unobservable; thus, the conceptual framework of this thesis does not specifically include audit process factors.

In conclusion, there are four key elements of audit quality as per the IAASB framework: the input, the output, the key interactions and the contextual factors that are central in this thesis in relation to MAPR in the Thai market. The adapted conceptual framework in this thesis based on the IAASB's (2014) audit quality framework, is depicted in Figure 2.3 below.

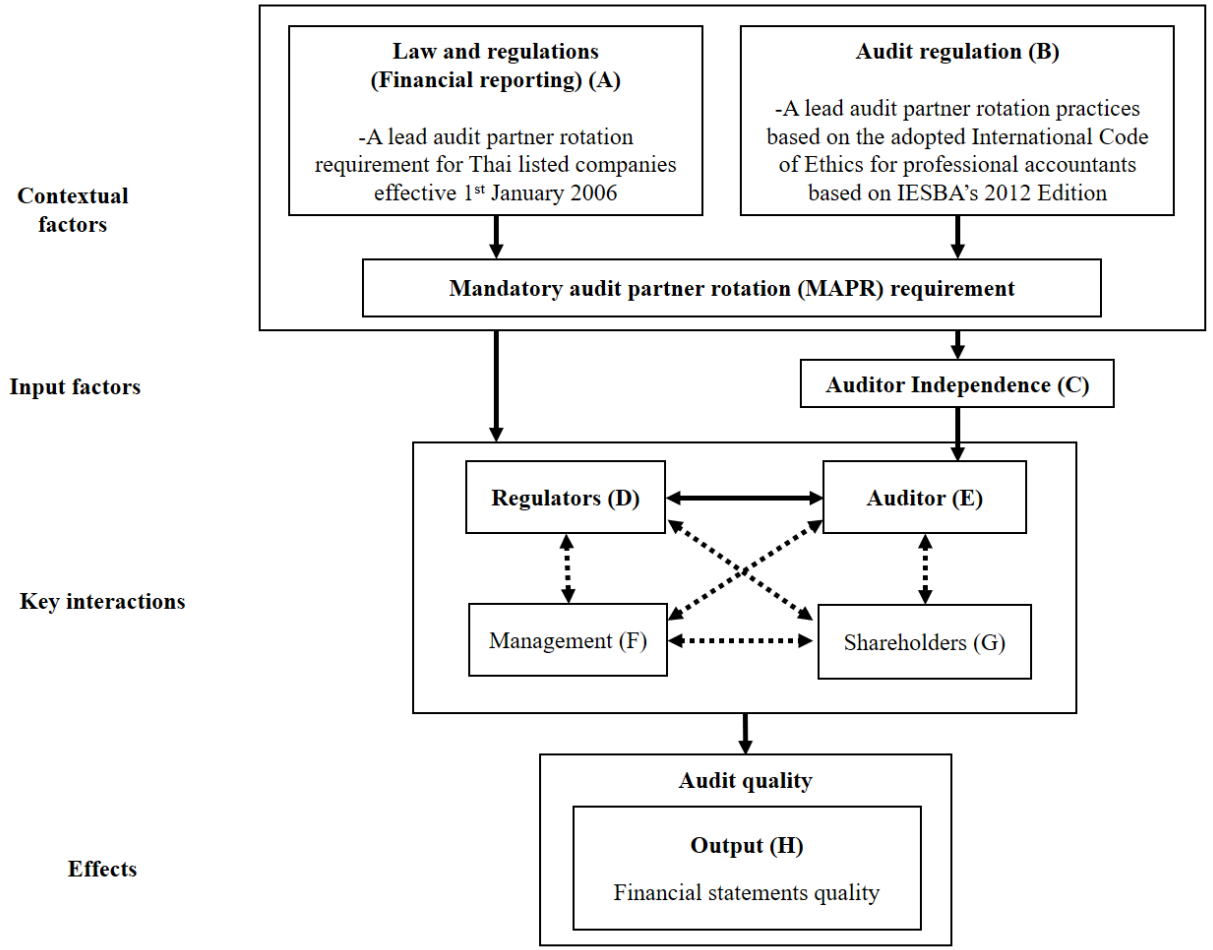


Figure 2.3: Conceptual framework for the Thai setting adapted from the IAASB's (2014) framework for audit quality

2.4.1 Contextual factors

In Figure 2.3, the contextual framework factor is the MAPR regime in Thailand. Two significant contextual factors in that setting are: the financial reporting laws and regulations, and audit regulation. Regarding the financial reporting laws and regulations, MAPR is required by the Securities and Exchange Committee of Thailand (SECT) for Thai companies that are listed on the Stock Exchange of Thailand (SET) (SECT, 2015) (path A → MAPR → key interactions and path A → MAPR → C → E → key interactions). The SECT requires five years of a lead audit partner appointment limitation for listed companies and two years of a cooling period through KorJor.39/2548 (Notification of the SECT on governing securities issuance and issuer's duty), which has been in effect since 1 January 2006 (Kitiwong, 2014; Phadungdet, 2014; Thapayom, 2012). This was also discussed in Chapter 1, Section 1.4.

The Federation of Accounting Professions (FAP) imposes audit regulation. The FAP have adopted the International Code of Ethics for professional accountants based on IESBA's 2012 Code (the Code). The Code requires the rotation of the lead audit partner in order to promote auditor independence and high quality auditing (path B → MAPR → key interactions and path B → MAPR → C → E → key interactions) (Phadungdet, 2014; Pinijorachai, 2007; Thapayom, 2012). The MAPR is thus described as an environmental factor that affects the interactions among key stakeholders on an audit.

2.4.2 Input factor

In this thesis, auditor independence is an audit partner characteristic (Beck, Fuller, Muriel, & Reid, 2013), described as an input factor. This is also discussed in Section 2.3.1. It is expected that the MAPR requirement can enhance auditor independence by minimising auditor tenure. Minimising auditor tenure can limit familiarity and self-interest threats to an auditor's independence (part MAPR → C) (IAASB, 2014). The MAPR requirement thus affects an audit partner characteristic (part C → E). As part of

the input into audit quality, consequently, and as a result of MAPR, an improvement in audit quality is expected to be found in this thesis.

2.4.3 Key interactions

Key interactions are described as the communication among the key stakeholders in an audit. MAPR is assumed to have an influence on the context and the dynamic of the relationship between contextual factors (laws and regulations), input (auditor independence), and output (audit quality) as shown in Figure 2.3. In Thailand, a lead audit partner is required by the regulators to be rotated. The regulators in that context are the FAP and SECT. As such, the key element of the contextual factors in Thailand is the regulators (D). The auditor (E), management (F), and financial statement users (G), in that framework form the key interactions supporting high quality financial reporting and audit quality (IAASB, 2014).

The MAPR requirement affects other interactions among key stakeholders within the financial reporting supply chain. Regulators establish and enforce the financial reporting frameworks for audit quality improvements (path D → F). Publicly reported Thai regulators' activities provide "an impression of audit quality", especially to the financial statement users (IAASB, 2014, p. 24) (path D → G). Financial statement users and management provide feedback to regulators (path G → D, F→ D) on the process of regulation. However, the focus of this thesis is on the effects of MAPR regulation (the contextual factor (MAPR)) on audit quality via financial statements quality which is an output factor (H).

The interaction between shareholders and management can also enhance shareholders' understanding of the financial statements through the issuance of press releases (path F → G). The shareholders could demand higher quality financial reporting from management in annual general meetings, expecting them to align their interests to their own (path G → F). The MAPR requirement that introduces the new lead audit partner to

audit companies' financial statements is expected to improve financial statement quality as a result of the higher audit quality of an incoming audit partner following MAPR.

The shareholders interact with the new lead audit partner following MAPR in the annual general meetings by asking questions and clarifications, and appointing or reappointing an entity's auditor (path G → E). The new lead audit partner has to provide an independent opinion about the truth and fairness of the entity's financial position to the shareholders (path E → G). As an auditor is expected to be independent while performing the audit (DeAngelo, 1981b), MAPR is expected to improve auditor independence by minimising threats to independence, particularly threats arising from overfamiliarity and self-interest, which therefore improves audit quality (IAASB, 2014).

Management is responsible for the preparation of financial statements and the provision of other related information to the audit partner (path F → E). The audit partner is also required to give recommendations and suggestions for possible improvements to the entity's financial reporting practices and internal controls (path E → F). However, if the auditor is overly familiar with the client due to auditing the same client for a long period of time, this could create a familiarity threat in addition to self-interest threats through the continuity of expected audit fees (IAASB, 2014). These familiarity and self-interest threats can lead auditors to not perform their audit procedures to the highest standard and thus affect the quality of financial statements. These threats to independence are expected to be reduced by requiring MAPR in Thailand (Phadungdet, 2014; Pinijorachai, 2007; Thapayom, 2012). The rotation of a lead audit partner is thus seen as a crucial factor for promoting audit quality.

2.4.4 Effect

In this thesis, audit quality is referred to as the effect/the output factor of MAPR through key interactions as illustrated in Figure 2.3. The IESBA (2012) and previous studies have claimed that MAPR can improve audit quality (Kitiwong, 2014; Lennox et al., 2014; Matthews, 2012). The MAPR requirement aims to encourage auditor independence

through the introduction of a new lead audit partner in the company audit. This improves financial statement quality as a result of higher audit quality (path MAPR → C → E → key interactions → H).

Prior studies have employed various ex-post audit data (Kitiwong, 2014) as a proxy of output to evaluate audit quality. The variety of ex-post data is used due to the difficulty of direct audit quality investigation as previously discussed in Section 2.3.3. In order to evaluate audit quality, the auditor's opinion (Firth et al., 2012; Geiger & Raghunandan, 2002; Monroe & Hossain, 2013) and quality of audited financial statements (Chen et al., 2008; Chi et al., 2009; Kwon et al., 2014; Thapayom, 2012) have been widely used. Following prior studies regarding the MAPR environment, this thesis uses audited financial statement quality as a proxy for audit quality (Chen et al., 2008; Chi & Huang, 2005; Chi et al., 2017; Kitiwong, 2014; Myers et al., 2003) – in other words, the quality of financial statements is expected to result from the increased audit quality that is expected to improve as a result of MAPR adoption. The measurement of financial statements quality is discussed as part of the research methodology section in Chapter 4.

Four key determinants of the 2014 IAASB audit quality framework are highlighted and used in this thesis' conceptual framework. These are: the contextual factors, input factors, key interactions, and output factors. Using this conceptual framework, the results of this thesis provide insights into the impact of MAPR on audit quality in Thailand.

2.5 Summary and conclusion

This thesis uses agency theory to describe the demand for audit quality and the associated role of an auditor through the preservation and improvement of auditor independence as a consequence of the MAPR requirement. Based on the principal-agent relationship, an auditor reduces the agency costs stemming from conflicts of interests, and eliminates information asymmetry between shareholders and management. An auditor who acts in the interest of the shareholders increases the credibility and reliability of financial information.

This thesis follows the definition of audit quality by DeAngelo (1981b), which emphasises an auditor's independence evidenced by his/her ability to detect and report companies' financial reporting misstatements. It is expected, therefore, that auditor independence, which is likely to be achieved by the implementation of the MAPR requirement in Thailand, can improve overall audit quality in the market. The rotation of a lead audit partner following MAPR is expected to minimise the familiarity threat between the auditor and management that develops through audit tenure. The over-familiarity can impair audit partners' independence and thus lead to a decline in audit quality. Moreover, the self-interest threat on an audit partner through over-dependence on audit fees can also deteriorate auditor independence, and it is likely to result in adverse or diminished audit quality. A periodic rotation, therefore, of a lead audit partner is expected to encourage audit quality by promoting the audit partner's independence, limiting self-interest and familiarity threats, and improving the auditor's objectivity and independence, leading to the good quality financial statements.

In addition to the MAPR requirement, there are other key impacting factors reported to lead to the improvement of audit quality in the market. Based on the IAASB (2014) audit framework and the literature, this thesis' conceptual framework is developed. The framework incorporates four keys elements of audit quality: contextual factors, input factors, key interactions, and output factors. The MAPR requirement by Thai regulators is conceptualised as a contextual factor that encourages auditor independence as an input factor and the key interaction of stakeholders through exchanges of communication among the regulators, shareholders, management and auditors, which all contribute to the improvements in audit quality. The focus of this thesis is to examine the impact of MAPR (the contextual factor) on audit quality (an output factor). Financial statements quality is taken as the audit quality proxy in this thesis and this is further described later in Chapter 4.

The next chapter reviews the literature related to MAPR and audit quality, including various literature on the influencing factors of audit quality. The literature review in the next chapter also highlights the gaps in the existing literature. These gaps are the basis for the hypotheses in this thesis.

Chapter 3 Literature review and hypotheses development

Chapter 3 provides a review of prior literature and the development of hypotheses relating to the mandatory audit partner rotation (MAPR) requirement and its effects on audit quality. Section 3.1 contains the literature review which is based on previous research and guidance provided by the IAASB (2014) audit quality framework. The focus of that literature is on audit quality, auditor tenure and various factors that are known to have the potential to impact on audit quality following the introduction of MAPR. The attributes of audit firms and audit partners (i.e. audit firm size, audit firm industry specialist, audit partner specialist and audit partner busyness) are then discussed. A discussion of these factors is presented in Section 3.2. Section 3.3 explains how audit quality (prior to the voluntary audit partner rotation regime) differs from audit quality post the first year of adoption of the mandatory audit partner rotation (MAPR regime). Finally, Section 3.4 summarises and concludes the chapter.

3.1 MAPR and audit quality

This section provides a discussion of the audit quality literature and the relationship between long auditor tenure, audit quality and MAPR. Then, the association between MAPR and audit quality is also described and used to form the hypotheses of this thesis.

3.1.1 Audit quality

Audit quality is at the core of auditing. It is a complex and multifaceted concept (Francis, 2011; Knechel, Krishnan, Pevzner, Shefchik, & Velury, 2013) that depends on the objectives of the stakeholders (Kitiwong, 2014; Knechel et al., 2013; Knechel & Shefchik, 2014). Since the definition of audit quality varies, there are an increasing number of studies investigating audit quality (Kitiwong, 2014; Knechel et al., 2013).

Previous studies on audit quality have examined different perspectives in many different contexts (e.g. Kitiwong, 2014; Knechel et al., 2013). In developed countries, for example, higher audit quality is related to a lower cost of debt, such as in the U.S. market (Causholli & Knechel, 2012), the Finnish market (Karjalainen, 2011), and other international markets (Gul, Zhou, & Zhu, 2013). This is because higher audit quality can increase companies' financial statements credibility, thus lowering the cost of debt. Also, higher audit quality tends to be achieved in a higher litigation risk regime, such as in the U.S. market (Venkataraman, Weber, & Willenborg, 2008). In this regime, the auditors are more conservative due to the higher risk of auditor compensation. Some studies point out that higher audit quality has a positive association with larger audit firms (Boone, Khurana, & Raman, 2010; Francis & Yu, 2009; Khurana, Ni, & Shi, 2017). This is because larger audit firms have superior in-house knowledge and experience that can deliver a higher quality of audits. Further, the study by Hay, Knechel, and Wong (2006) highlighted that higher audit fees paid to larger audit firms can be inferred as higher audit quality in international countries (Knechel & Shefchik, 2014). This is because the larger audit fees paid to an auditor mean that an auditor is expected to increase his/her effort in providing their audit services, which results in superior audit quality (Hay et al., 2006). On the other hand, a study in the context of the U.S. market by Hoitash, Markelevich, and Barragato (2007) argues that larger audit fees can impair auditor independence because of the high economic dependency of the auditors on their fees, resulting in lower audit quality.

Researchers have also observed various factors influencing audit quality in developing markets. Similarly, higher audit quality is found to be associated with larger audit firms in China (Wong, Firth, & Lo, 2018), South Korea (Choi, Kim, & Mali, 2017), and Southeast Asian countries such as Thailand and the Philippines (Kitiwong, 2014). Other studies have examined the relationship between audit quality and audit partner attributes. These studies found that the auditor experience in China (Cahan & Sun, 2015) and the audit partner industry specialists in China (Liu, 2017) and Taiwan (Liu, Xie, Chang, & Forgione, 2017) have a strong relationship with audit quality. This is because a deep understanding of the industry's operating characteristics and risks, which is enhanced by auditor' experience, may assist auditors to effectively identify significant misstatements in the financial statements, a result of increased audit quality.

Auditor independence is the focus of this thesis. Long auditor tenure has been scrutinised by regulators, and in prior studies, auditor tenure has been confirmed as the crucial impacting factor on auditor independence and audit quality (e.g. Ghosh & Moon, 2005; Johnson et al., 2002; Litt et al., 2014; Myers et al., 2003). This was discussed in Chapter 2, Section 2.2. The next section provides explanations about the relationship between audit quality and long auditor tenure as researched in prior literature.

3.1.2 Audit quality and long auditor tenure

Previous research has revealed inconclusive results on the impact of long audit tenure on audit quality in various contexts. Some studies suggest that higher audit quality is related to a longer auditor tenure in developed markets such as in the U.S. (Ghosh & Moon, 2005; Johnson et al., 2002; Litt et al., 2014; Myers et al., 2003), Australia (Arthur et al., 2017; Carey & Simnett, 2006), and some European countries (Garcia-Blandon, Argilés-Bosch, & Ravenda, 2019). This is because the auditor has accumulated specific knowledge of clients gained through experience with a particular client over time. The auditor's in-depth knowledge increases the likelihood that auditors will detect misstatements in financial statements, which possibly improves audit quality (Arthur et al., 2017; Knechel & Shefchik, 2014; Litt et al., 2014; Myers et al., 2003). Prior studies in developing markets produced similar results, such as Taiwan (Chi et al., 2009), South Korea (Choi et al., 2017; Kwon et al., 2014), and Indonesia (Suprapto & Suwardi, 2013), all of which support the relationship between long auditor tenure and higher audit quality.

On the other hand, a long auditor tenure may lead to the auditors being over-familiar with management, which can impair auditor independence and lower audit quality. This argument is supported by many prior studies, for example, in the U.S. market (Dopuch et al., 2001), the Taiwanese market (Chen et al., 2008; Chi & Huang, 2005), and the Chinese market (Firth et al., 2012). In order to increase auditor independence so to limit over-familiarity and improve audit quality, the regulators in many countries require mandatory rotation of a lead audit partner so to shorten auditor tenure. This is further discussed in Chapter 2, Section 2.2. The effect of the MAPR requirement on audit quality is further discussed in the next subsection.

3.1.3 MAPR and audit quality

The concept of MAPR is widespread and has been adopted by many countries such as the U.S., the U.K., Germany, Italy, Australia, New Zealand, China, Taiwan and Malaysia (Bandyopadhyay et al., 2014; Chen et al., 2008; Daugherty et al., 2012; Fargher et al., 2008; Firth et al., 2012; Lee, 2015). The main aim of the MAPR requirement is to improve audit quality. This is achieved through the MAPR requirement promoting auditor independence by limiting a long tenure and close relationship between the client's management and the auditor (Carey & Simnett, 2006; Chi & Huang, 2005).

In terms of tenure, the longer the tenure of the auditor with the client, the higher the threat to auditor independence (Chi & Huang, 2005; Dopuch et al., 2001), especially the over-familiarity threat. These threats can lead the auditor to not detect material misstatements, and, if there are any, to not report them that may not improve audit quality (DeAngelo, 1981b). Previous studies have found that a lead audit partner with longer audit tenure with a client is less likely to issue a going-concern modified opinion, even for financially distressed clients (e.g. Carey & Simnett, 2006; Carson et al., 2013; Firth et al., 2012; Ye et al., 2011), which can be in favour of what the client's management wants reported (Daugherty et al., 2012). A further argument against long audit tenure is that the same audit partner who works with the same client for many years is likely to use static audit programmes and heavily rely on previous working papers and risk assessments, rather than creating totally new methodologies (Johnson et al., 2002; Lee, 2015; Monroe & Hossain, 2013). This also potentially impairs audit quality. In addition, a partner with a long tenure is likely to use the same audit team which is also likely to influence their professional scepticism while performing the audit fieldwork. The effect of the same audit team is more pronounced with the lead partner having a long tenure compared to the new lead audit partner who might establish a new audit team. The MAPR requirement is expected to mitigate the over-familiarity threat and enhance auditor independence, and thus improve audit quality (Firth et al., 2012; Healey & Kim, 2003; Lennox et al., 2014).

Not only does MAPR diminish the over-familiarity threat and in that way enhance auditor independence, it also induces new insights by the incoming audit partner. This is likely

to have positive effects on the audit process and audit quality (Fargher et al., 2008; Healey & Kim, 2003; Laurion, Lawrence, & Ryans, 2017; Lennox et al., 2014). The fresh and sceptical set of eyes the new lead audit partner brings to auditing the client's business operations and identifying and assessing risk and internal control systems, encourages the audit team members to view various aspects of the client and the engagement differently (Bandyopadhyay et al., 2014; Fargher et al., 2008; Hamilton, Ruddock, Stokes, & Taylor, 2005; Healey & Kim, 2003; Lennox et al., 2014). This fresh look is better able to limit managers' aggressive accounting treatments (Bandyopadhyay et al., 2014; Fargher et al., 2008; Lee, 2015; Matthews, 2012), and increase the likelihood of a higher number of material audit adjustments (Lennox et al., 2014) and restatements (Laurion et al., 2017). A new lead audit partner is also likely to report audit failures and issue a going-concern opinion (Geiger & Raghunandan, 2002; Litt et al., 2014) as he/she is not likely to, due to short audit tenure, be exposed to fee-dependence from the client.

On the other hand, a number of previous studies argue that the MAPR requirement does not increase audit quality. The rotation of a lead audit partner can cause a loss of the client-specific knowledge accumulated by the outgoing audit partner. An incoming audit partner following MAPR lacks client-specific knowledge and is less likely to improve audit quality (Chi et al., 2009; Daugherty et al., 2012; Litt et al., 2014; Myers et al., 2003). Further, a lesser-informed lead audit partner may not effectively be able to minimise the management's inappropriate accounting treatments in the financial statements (Chi et al., 2009; Litt et al., 2014; Myers et al., 2003; Siregar et al., 2012). The lack of knowledge of the client's businesses may cause the new audit partner to spend more time and effort, and prolonged audit hours acquiring adequate client knowledge, especially in the MAPR transition year (Bedard & Johnstone, 2010; Stewart et al., 2016). Even when this knowledge is obtained, the level and the quality of the client-specific knowledge might not be comparable with that of the outgoing audit partner (Arruñada & Paz-Ares, 1997; Chi et al., 2017; Johnson et al., 2002). In addition, even when there is a new audit partner, if the audit team is unchanged, the audit team members who have a long tenure with the client might contribute to the familiarity threat and inhibit the new lead audit partner in exercising his or her fresh insights effectively, also impairing audit quality.

Larger client companies typically have more complex businesses and a new lead audit partner's gradual learning curve is further exacerbated by his or her attempt to accumulate knowledge about those types of clients (Chi et al., 2009; Geiger & Raghunandan, 2002; Litt et al., 2014; Stakebrand, 2016). This is especially so during the MAPR transition years if the new lead audit partner is pressured by time to gain adequate knowledge of the large client's operations. That kind of challenge is greater if the listed company has a number of subsidiaries, business segments and foreign investments (Stewart et al., 2016). These factors might inhibit the new audit partner from effectively detecting material misstatements in the financial statements, resulting in lower audit quality (Chi et al., 2009; Geiger & Raghunandan, 2002; Gipper et al., 2018; Litt et al., 2014).

In summary, some previous studies in various countries confirm that MAPR brings an improvement to audit quality through the fresh perspective of the new lead audit partner that also leads to improvement in auditor independence (Carey & Simnett, 2006; Daugherty et al., 2012; Fargher et al., 2008; Lennox et al., 2014). On the other hand, there is also evidence of audit quality impairment following MAPR due to a loss of client-specific knowledge, the new lead audit partner's learning curve when acquiring a new client, and obstacles in obtaining and exercising a fresh view by the new partner if the audit team is unchanged (Chi et al., 2009; Geiger & Raghunandan, 2002; Litt et al., 2014; Myers et al., 2003; Stewart et al., 2016). The results of prior studies have thus been somewhat contradictory and inconclusive. A summary of previous studies in regard to the MAPR requirement are presented in Table 3.1. The Table 3.1 is presented in the chronological order so to highlight the development of prior research on the impact of different types of audit partner and audit firm rotation on audit quality.

Table 3.1: Prior international studies on the impact of auditor tenure, audit partner and audit firm rotation on audit quality

Study	Proxy for audit quality	Results of audit quality	Audit partner rotation during sample period	Audit firm rotation during sample period	Sample size and sample period	Data setting
Geiger and Raghunandan (2002)	The propensity of a going-concern audit opinion	Negative	Voluntary	Voluntary	117 companies that enter to bankruptcy during 1996 – 1998	U.S.
Johnson et al. (2002)	Absolute value of unexpected accruals	Negative	Voluntary	Voluntary	2,463 firm-year observations during 1986 – 1995	U.S.
Myers et al. (2003)	- Discretionary accruals - Current accruals	Negative	Voluntary	Voluntary	41,250 firm-year observations during 1988 – 2000	U.S.
Shafie, Yusof, and Hussain (2004)	The propensity of a going-concern audit opinion	Negative	Mandatory	Mandatory	187 firm-year observations during 2002	Malaysia
Chi and Huang (2005)	Discretionary accruals	Positive	Voluntary	Voluntary	1,337 firm-year observations during 1998 – 2001	Taiwan
Carey and Simnett (2006)	- Auditor's propensity to issue a going-concern audit opinion - Abnormal working capital accruals - Beating (missing) earnings benchmarks	Mixed results	Voluntary	Voluntary	1,152 firm-year observations during 1995	Australia

Study	Proxy for audit quality	Results of audit quality	Audit partner rotation during sample period	Audit firm rotation during sample period	Sample size and sample period	Data setting
Chen et al. (2008)	Performance-adjusted discretionary accruals	Negative	Voluntary	Voluntary	5,213 firm-year observations during 1990 – 2001	Taiwan
Fargher et al. (2008)	The absolute value of discretionary accruals	Positive	Voluntary and Mandatory	Voluntary	1,311 firm-year observations during 1990 – 2004	Australia
Chi et al. (2009)	- Absolute performance-matched abnormal accruals - Earnings response coefficient	Negative	Voluntary and Mandatory	Voluntary	618 firm-year observations during 2002 – 2004	Taiwan
Shafie, Hussin, Yusof, and Hussain (2009)	The propensity of a going-concern audit opinion	Negative	Mandatory	Mandatory	187 firm-year observations during 2002	Malaysia
Kwon et al. (2010)	- Audit hours - Audit fees - Performance-matched abnormal accruals	Negative	Voluntary and Mandatory	Mandatory	5,557 firm-year observations during 2000 – 2007	South Korea
Chi and Chin (2011)	- The magnitude of discretionary accruals - The likelihood of issuing a modified audit opinion	Positive with conditions	Voluntary	Voluntary	8,140 firm-year observations for discretionary accruals 8,863 firm-year observations for modified audit opinion during 1983 – 2004	Taiwan
Daugherty et al. (2012)	Structured interviews and surveys of practising audit partners	Positive	Mandatory	Voluntary	170 surveys	U.S.

Study	Proxy for audit quality	Results of audit quality	Audit partner rotation during sample period	Audit firm rotation during sample period	Sample size and sample period	Data setting
Firth et al. (2012)	The propensity of a modified audit opinion	Positive	Voluntary and Mandatory	Voluntary	8,560 firm-year observations during 1997 – 2005	China
Matthews (2012)	- Performance-matched abnormal accruals - Earnings targets	Positive	Mandatory	Voluntary	3,385 firm-year observations during 2006 – 2010	U.S.
Siregar et al. (2012)	Absolute discretionary accruals	Negative	Voluntary and Mandatory	Mandatory	559 firm-year observations during 1999 -2001 1,132 firm-year observations during 2004 – 2008	Indonesia
Monroe and Hossain (2013)	The propensity of a going-concern audit opinion issuing	Positive	Mandatory	Voluntary	4,711 firm-year observations during 2006 – 2010	Australia
Suprapto and Suwardi (2013)	Audit partner's compliance with professional audit standards (AASC's inspection report)	Negative	Mandatory	Mandatory	239 and 117 firm-year observations during 2007 – 2011	Indonesia
Bandyopadhyay et al. (2014)	Discretionary accruals	Positive	Mandatory	Voluntary	273 firm-year observations during 2004 – 2011	China
Kwon et al. (2014)	- Audit hours - Audit fees - Performance-matched abnormal accruals	Negative	Voluntary and Mandatory	Mandatory	6,710 firm-year observations during 2000 – 2009	South Korea

Study	Proxy for audit quality	Results of audit quality	Audit partner rotation during sample period	Audit firm rotation during sample period	Sample size and sample period	Data setting
Lennox et al. (2014)	Audit adjustment transactions based on Inspection Bureau's audit adjustments database	Positive	Mandatory	Voluntary	8,087 firm-year observations during 2006 – 2010	China
Litt et al. (2014)	Discretionary accruals to meet or beat analysts' earnings forecast	Negative	Voluntary and Mandatory	Voluntary	2,108 firm-year observations during 2000 – 2004	U.S.
Sundgren and Svanström (2014)	The propensity of a going-concern audit opinion	Negative	Mandatory	Mandatory	1,145 firm-year observations during 2008 – 2009	Sweden
Cameran et al. (2015)	- Audit fees - Audit hours - Absolute value of abnormal working capital accruals - Timeliness loss recognition	Negative	Mandatory	Mandatory	667 firm-year observations during 2006 – 2009	Italy
Lee (2015)	- The propensity of issuing a going-concern audit opinion - The probability of issuing a restatement - The probability of meeting or just beating analysts' forecasts - The magnitude of discretionary accruals	Mixed results	Mandatory	Voluntary	151 firm-year observations for GCO 1,463 firm-year observations for a restatement 1,125 firm-year observations for meeting or just beating analysts' forecasts 1,270 firm-year observations for DA during 2005 – 2011	Germany

Study	Proxy for audit quality	Results of audit quality	Audit partner rotation during sample period	Audit firm rotation during sample period	Sample size and sample period	Data setting
Cameran et al. (2016)	- Abnormal working capital accruals - Timeliness loss recognition - Earnings response coefficients	Negative	Mandatory	Mandatory	1,184 firm-year observations during 1985 – 2004	Italy
Chi et al. (2017)	Performance-adjusted discretionary accruals	Positive with conditions	Mandatory	Voluntary	5,848 firm-year observations during 2008	Taiwan
Goodwin and Wu (2016)	- Discretionary accruals - The propensity of a going-concern audit opinion	Negative	Voluntary and Mandatory	Voluntary	6,558 firm-year observations during 1999 – 2010	Australia
Stewart et al. (2016)	Audit fees	Negative	Mandatory	Voluntary	4,342 firm-year observations during 2007 – 2010	Australia
Arthur et al. (2017)	The absolute value of discretionary accruals modified Jones model	Positive with conditions	Mandatory	Voluntary	827 firm-year observations during 2008 – 2014	Australia
Gul, Ma, and Lai (2017)	- The incidence of earnings manipulation identified by the China Securities Regulatory Commission - The probability of a client meeting an earnings benchmark - The probability of issuing a going-concern audit opinion	Negative	Voluntary and Mandatory	Voluntary	8,560 firm-year observations during 1997 – 2005	China

Study	Proxy for audit quality	Results of audit quality	Audit partner rotation during sample period	Audit firm rotation during sample period	Sample size and sample period	Data setting
Liu et al. (2017)	The absolute value of discretionary accruals modified Jones model	Positive	Voluntary and Mandatory	Voluntary	39,439 firm-year observations during 1990 – 2013	Taiwan

The literature indicates that the positive effect of the MAPR requirement on auditor independence is more pronounced in weak legal environments and less developed markets (Bandyopadhyay et al., 2014; Firth et al., 2012). For example, Chinese listed companies with auditors under the MAPR regime have lower income-increasing discretionary accruals (Bandyopadhyay et al., 2014) and are more likely to receive a modified audit opinion (Firth et al., 2012), thus appear to have experienced improved audit quality.

The concept of MAPR has been since perceived as the best practice likely to promote the audit quality by limiting over-familiarity in the auditor-client relationship and improve auditor's independence. The MAPR requirement had been enacted in the U.S. through legislation of SOX in 2002. Subsequently it widespread through other developed countries such as U.K., Germany, Italy and Australia (Fargher et al., 2008; Kwon et al., 2014; Lee, 2015; Shafie et al., 2004). The audit partner rotation requirement has also extended to developing countries in Asian region such as China and Taiwan in 2004 (Bandyopadhyay et al., 2014); (Chi et al., 2009) and South Korea in 2006 (Kwon et al., 2014). The listed companies in these markets initially could voluntarily rotate their lead audit partner before MAPR was mandated in those countries too. Regulators in Southeast Asian region, such as Singapore, Malaysia and Indonesia had also imposed similar requirement in 2002 to conform to global ethical standards and boost the audit quality in their market (Shafie et al., 2009; Suprapto & Suwardi, 2013). Under the influence of international ethical practice standards and influenced by neighbouring countries, the regulators in Thailand also adopted the concept of the MAPR in 2006 (Kitiwong, 2014). However, there is limited conclusive evidence of the effectiveness of MAPR in developing countries especially Thailand. A study by Phadungdet (2014) points out that MAPR can limit discretionary accruals of listed companies, indicating higher audit quality. Even though the concept of MAPR from international settings is seen as encouraging higher audit quality, this requirement has not been confirmed as effective in Thai context. A study by Pinijorachai (2007) and Thapayom (2012) revealed that there is no relationship between audit partner rotation and higher earnings quality, or audit quality.

The results from previous Thai studies are mixed and inconclusive. As such, this thesis aims to provide recent evidence on the effectiveness of MAPR requirement by examining whether listed companies in Thailand which experienced multiple MAPRs have indeed increased their audit quality. It is assumed that the accumulated experience with multiple MAPR will lead to greater auditor independence by limiting over-familiarity with the client's management. With the accumulated experience, it is expected that the new audit partner will better manage the auditing processes of the financial statements based on better understanding of the client's business operations and the audit risks involved. Together, all these factors are expected to improve the chances of detecting material misstatements in the financial statements, leading to higher quality financial statements, as a consequence of better quality audits. Following this proposition, the first hypothesis is:

H1: There is an improvement in audit quality as a consequence of multiple MAPRs.

3.2 Effect of auditor attributes on audit quality in combination with MAPR

There are additional factors that appear to impact on audit quality. Based on prior studies, the auditor attributes, for example, audit firm size (Chayasombat, 2010; Chi & Huang, 2005; Hamilton et al., 2005; Lee, 2015), and audit firm industry specialist (Arthur et al., 2017; Chi & Chin, 2011; Jaggi, Gul, & Lau, 2012; Liu, 2017; Zerni, 2012) are likely to enhance audit quality. This thesis investigates auditor attributes that potentially affect the audit quality of Thai listed companies having MAPR on two levels: the audit firm level (e.g. Arthur et al., 2017; Goodwin & Wu, 2016; Gul et al., 2017), and the audit partner level (e.g.Chi & Chin, 2011; Habib, 2011; Jaggi et al., 2012).

At the audit firm level, two attributes are observed: the audit firm size and the audit firm industry specialist. Audit firm size plays an important role in influencing audit quality. Previous studies suggest that the effect of the MAPR requirement on audit quality may vary depending on the size of the audit firm performing the audit (Chayasombat, 2010;

Chi & Huang, 2005; Hamilton et al., 2005; Lee, 2015). The results from prior research point out that large audit firms[3] provide greater audit quality to their clients compared to medium and small audit firms due to their resources and networks (Carson, 2009; Carson, 2014; Chayasombat, 2010; DeAngelo, 1981b; Francis, 2004; Francis & Yu, 2009). Several studies have highlighted that Big 4 audit firms are more privileged than non-Big 4 audit firms in terms of skilful auditing and industry in-house specialists (Carson, 2014; Chi & Huang, 2005; Francis & Yu, 2009). The study by Carson (2009) suggests that Big 4 audit firms as global audit firm networks have "global knowledge management databases and common industry-specific work programs and training" (p. 356) that can support their audit members to provide greater audits. In the case of MAPR, a new lead audit partner from a Big 4 audit firm following MAPR introduction could gain client-specific knowledge more speedily due to access to better resources and the audit firm being more likely to be an industry specialist. In addition, the larger the audit firm, the better the audit methodologies and more established audit procedures and policies to effectively manage the client's requirements and needs subsequent to MAPR, compared to the resources of smaller audit firms. In this sense, it can be argued that audit firm size in relation to MAPR is expected to affect audit quality.

In the Thai capital market, the listed companies' audit firms have to be licensed by the SECT. This has been discussed in Chapter 1, Section 1.3.2. The international auditing firms are not permitted to operate without having a connection to a locally established firm; thus, the Big 4 and other international firms have to recruit qualified audit partners from local firms and provide them access to the Big 4 firm's resources, including access to industry specialists (Pornupatham, 2006). The Big 4 audit firms in Thailand consist of Deloitte Touche Tohmatsu Jaiyos (Deloitte), EY Thailand (Ernst & Young), KPMG Phoomchai Audit Ltd (KPMG), and PwC Thailand (PwC). As a consequence of these requirements, in the Thai market, the Big 4 audit firms are not the dominant suppliers of audit services to listed companies. Statistics from 2006 to 2017 show that the Big 4 audit

[3] In this study, large audit firm refers to the international audit firms with international networks. The greater the firm's reputations, the greater accumulated in-house knowledge and experience for firms with industry specialists and large client numbers (Chayasombat, 2010; Francis & Yu, 2009; Ye et al., 2011).

firms provided auditing services to 57 percent of listed companies and the remaining audit services were provided by non-Big 4 audit firms, as shown in Table 3.2.

Table 3.2: Summary of listed companies' auditors from 2006 to 2017

Audit firms	Number of clients	%		Clients' sales amount (million USD)	%		Clients' assets amount (million USD)	%
Deloitte Touche Tohmatsu Jaiyos	120	3		74	4		115	5
EY Thailand	1,389	30		393	21		538	25
KPMG Phoomchai Audit Ltd	677	15		885	46		824	38
PwC Thailand	411	9		356	19		415	19
Big 4	**2,597**	**57**		**1,708**	**90**		**1,892**	**88**
Non-Big 4	1,977	43		196	10		265	12
Total	**4,574**	**100**		**1,904**	**100**		**2,157**	**100**

The Big 4 audit firms are primarily servicing larger sized clients compared to non-Big 4 audit firms. When the size of the client is measured by total sales and total assets, the Big 4 audit firms audit about 90 percent of all Thai listed companies' total sales or 88 percent of all Thai listed companies' total assets. In this sense, when it comes to the size of audit clients, Big 4 audit firms are considered dominant in the Thai audit market. It is possible that the Big 4 audit firms are better at managing client requirements subsequent to MAPR and this potentially improves audit quality (Christensen, Glover, Omer, & Shelley, 2016).

The audit firm industry specialist (AFSPEC) has a positive impact on audit quality (Chi & Chin, 2011; Habib, 2011; Jaggi et al., 2012). AFSPEC is claimed to result in substantial improvement in audit quality due to in-depth industry knowledge (Habib, 2011) and the greater understanding of their clients' business environment (Carson, 2009). AFSPEC is likely to promote audit quality through the audit firm's knowledge-sharing practices, facilitating significant resources about industries to audit members, and standardising industry specific audit programmes and methodologies (Carson, 2009; Chi & Chin, 2011; Christensen et al., 2016; Habib, 2011; Jaggi et al., 2012). A lead audit partner who is a

member of AFSPEC would be able to get access to better resources and experts, and have better knowledge of a client's specific risks and businesses, thus resulting in lower discretionary accruals and relatively higher audit quality (Jaggi et al., 2012; Lim & Tan, 2010). The AFSPEC audit firm has a strong association with higher audit quality as perceived by auditors and investors (Christensen et al., 2016). On the other hand, a study by Chi and Chin (2011) suggests that AFSPEC alone is less likely to improve audit quality. However, the majority of previous studies did not consider the effect of AFSPEC on audit quality and in the context of the MAPR requirement. In the Thai setting, none of the previous studies observed the impact of AFSPEC on the audit quality of Thai listed companies having the MAPR requirement. This thesis assumes that AFSPEC has a positive effect on audit quality in that setting.

At the audit partner level, recent studies report that audit partners' attributes do influence the quality of the audits following MAPR. This thesis focuses on the audit partner industry specialist (APSPEC) (Liu et al., 2017; Liu, 2017; Zerni, 2012) and audit partner busyness (BUSY) (Goodwin & Wu, 2016; Gul et al., 2017; Sundgren & Svanström, 2014). Audit partner specialisation is reported to enhance audit quality in some capital markets such as in the Australian (Arthur et al., 2017), Swedish (Zerni, 2012), and Chinese markets (Liu, 2017). An APSPEC possesses valuable industry knowledge and experience so this benefits the development of audit plans and audit procedures, which in turn enhances audit quality (Liu, 2017). A study by Zerni (2012) documents that the APSPEC is likely to conduct efficient audits based on their individual experience in the industry. In addition, listed companies audited by an APSPEC are likely to receive a modified audit opinion, which implicitly indicates higher audit quality (Chi & Chin, 2011).

Further, the effect of the combination of both an APSPEC and an AFSPEC on audit quality is also considered. The results of a study by Chi and Chin (2011) found that the combination of APSPEC and AFSPEC is related to positive audit quality by limiting the management's discretionary accruals and by issuing a modified audit opinion; in other words, partners with both an APSPEC and AFSPEC are better able to detect errors in listed companies' financial statements due to their industry specialisation (Arthur et al.,

2017; Chi & Chin, 2011). There is thus a simultaneous positive impact of both APSPEC and AFSPEC on audit quality.

On the other hand, a study by Aobdia, Siddiqui, and Vinelli (2016) argues that there is no association between audit partner specialisation and higher audit quality in the U.S. market. Aobdia et al. (2016) assumed that audit quality might be heavily dependent on the audit team and audit firm's methodology rather than an engagement partner's specialisation. However, Aobdia et al. (2016) did not focus on audit partner specialisation.

In the Thai context, the impact of the APSPEC on the audit quality of listed companies in conjunction with MAPR is unknown as it has not been previously researched. Based on prior studies in other markets, this thesis expects that the APSPEC partner with superior specific industry knowledge and more industry experience can potentially enhance audit quality in the Thai capital market.

The audit partner's busyness (BUSY) as the audit partner's attribute is highlighted from previous studies as an impacting factor on audit quality (Goodwin & Wu, 2016; Gul et al., 2017; Sundgren & Svanström, 2014). BUSY is denoted by the number of listed companies audited in their portfolio in a year. Previous studies point out that BUSY inhibits the time factor critically needed for audits (Goodwin & Wu, 2016; Gul et al., 2017; Sundgren & Svanström, 2014). In this way, it is possible that BUSY would not positively influence the new audit partner to provide higher audit quality to their clients (Gul et al., 2017; Sundgren & Svanström, 2014).

A study by Sundgren and Svanström (2014) explains that due to a very large number of engagements and limited by time, BUSY decreases the lead audit partner's ability to invest effectively in each engagement, which negatively influences audit quality. Similarly, a study by Gul et al. (2017) reports that lead audit partners who have more listed company clients provide lower audit quality and fail to detect earnings manipulation. This is because they are not able to manage their time to undertake an audit properly and this results in lower audit quality.

On the other hand, a study by Goodwin and Wu (2016) argues that BUSY means the audit partners become specialists in serving and handling multiple clients. The authors found no association between BUSY and income-increasing accruals and reported that they are more likely to issue a going-concern opinion. However, these prior studies did not investigate the effect of BUSY on the audit quality of listed companies in combination with MAPR.

Within the Thai context, this is the first study that incorporates BUSY as a variable for audit quality in the MAPR regime. In this thesis, an individual audit partner's client number varies from one listed company to 18 listed companies each year over the observed periods from 2006 to 2017. Being under time constraints, a new incoming audit partner who is busy and following MAPR may not have a positive impact on audit quality in the Thai setting.

Therefore, the hypothesis for the overall auditor attributes effect on audit quality in the MAPR environment, as per above the discussion is:

H2: There is an improvement in audit quality depending on auditor attributes following MAPR.

This thesis further observes the impact of audit firm attributes on audit quality and the H2 is further developed as:

H2a: There is an improvement in audit quality for listed companies having MAPR and being audited by Big 4 audit firms.

H2b: There is an improvement in audit quality for listed companies having MAPR when audited by an audit firm industry specialist.

The effect of audit partner attributes on audit quality is also observed. The H2 is further developed as:

H2c: There is an improvement in audit quality for listed companies having MAPR when audited by an audit partner industry specialist.

H2d: There is an improvement in audit quality for listed companies having MAPR when audited by an audit partner who is not busy.

3.3 First MAPR under the MAPR regime (FMAPR) relative to the last preceding voluntary rotation (VAPR) and audit quality

A limited number of studies compare audit quality as a consequence of FMAPR relative to the audit quality of the VAPR of the same listed companies. For example, a study by Matthews (2012) observes audit quality of investigated companies with voluntary rotation of lead partners on their financials statements' audits (VAPR) with the audit quality of companies that have had mandatory rotation of the lead partner on their financial statements' audits (MAPR) in the U.S. market. That study finds improvements in audit quality for companies that transitioned from VAPR to MAPR. On the other hand, the study by Chi et al. (2009) reports contradictory results. Focusing on FMAPR in the Taiwanese market, they find that the change to MAPR regime impairs audit quality (Chi et al., 2009). In the Thai setting, none of the previous studies observed the impact of FMAPR on the audit quality of Thai listed companies.

This thesis expects a positive impact on audit quality post first mandatory partner rotation (FMAPR). Unlike previous studies, this thesis examines the same listed companies in both regimes, MAPR and VAPR. By investigating the audit quality of the same companies prior to and subsequent to MAPR, this study endeavours to provide evidence of the immediate impact of MAPR on audit quality; thus, the third hypothesis is developed as:

H3: There is an improvement in audit quality for listed companies post the first mandatory partner rotation.

3.4 Summary and conclusion

This chapter begins with a discussion about possible factors in relation to audit quality. Many factors that have an impact on audit quality are observed in previous studies in various settings, for example, cost of debt (Causholli & Knechel, 2012; Gul et al., 2013; Karjalainen, 2011), the litigation risk context (Venkataraman et al., 2008), audit firm size (Boone et al., 2010; Choi et al., 2017; Francis & Yu, 2009; Khurana et al., 2017; Kitiwong, 2014; Wong et al., 2018), and audit fees (Hay et al., 2006; Hoitash et al., 2007; Jung, Kim, & Chung, 2016; Knechel & Shefchik, 2014). Also, the association between audit quality and audit partner attributes are observed as factors affecting audit quality in previous studies, such as auditor experience (Cahan & Sun, 2015), and audit partner industry specialist (Liu et al., 2017; Liu, 2017).

Auditor tenure is also highlighted as one of the crucial impacting factors on audit quality. Some studies suggest that the longer the auditor tenure, the higher the audit quality because of the better accumulated knowledge based on the auditor's actual experience of a particular client over time (Arthur et al., 2017; Chi et al., 2009; Garcia-Blandon et al., 2019; Ghosh & Moon, 2005; Johnson et al., 2002; Kwon et al., 2014; Litt et al., 2014; Myers et al., 2003). However, an over-familiarity between the auditors and the management stemming from a longer auditor tenure is likely to impair auditor independence and weaken audit quality (Carey & Simnett, 2006; Chen et al., 2008; Chi & Huang, 2005; Dopuch et al., 2001; Firth et al., 2012). In order to increase audit quality and limit threats to auditor independence, the MAPR is required by many regulators.

The impact of the MAPR requirement on audit quality has been studied in different settings. Prior studies suggest that MAPR can limit over-familiarity (Carey & Simnett, 2006; Chi & Huang, 2005; Fargher et al., 2008) by enhancing auditor independence which can improve audit quality (Firth et al., 2012; Healey & Kim, 2003; Lennox et al., 2014; Matthews, 2012). Moreover, an incoming audit partner following MAPR is likely to bring 'fresh look' benefits to the audit process (Lee, 2015; Lennox et al., 2014; Litt et al., 2014; Matthews, 2012), which is most likely to lead to higher audit quality.

The contrary argument in the literature has been that MAPR may not encourage a higher audit quality because of the lack of client-specific knowledge of the incoming audit partner (Chi et al., 2009; Geiger & Raghunandan, 2002; Litt et al., 2014; Myers et al., 2003), the learning curve for the new audit partner on engagement (Chi et al., 2009; Daugherty et al., 2012; Geiger & Raghunandan, 2002), and other obstacles to the 'fresh insight' benefit (Johnson et al., 2002; Lee, 2015; Monroe & Hossain, 2013).

The inconclusive results of previous studies on MAPR and audit quality in developing countries lead to questions about the effectiveness of MAPR in the Thai market. Based on prior studies and the Thai market characteristics, as discussed in Chapter 1, it is hypothesised that the MAPR requirement will improve audit quality for Thai listed companies.

Unlike other previous studies in the Thai context, this thesis is guided by the IAASB (2014) framework of audit quality and introduces other factors that have not been researched in MAPR and audit quality research. These factors include auditor attributes such as audit firm size and audit firm industry specialist based on previous studies (Chayasombat, 2010; Chi & Chin, 2011; Chi & Huang, 2005; Francis & Yu, 2009; Habib, 2011; Hamilton et al., 2005; Jaggi et al., 2012; Lee, 2015; Lim & Tan, 2010). Audit partner industry specialist and audit partner busyness are also included based on previous studies (Chi & Chin, 2011; Goodwin & Wu, 2016; Sundgren & Svanström, 2014; Zerni, 2012). Further, this thesis researches the effects of the first mandatory audit partner rotation (FMAPR) following the previous voluntary audit partner rotation (VAPR). This is the first such study in Thailand's context.

The next chapter discusses the models used to test the hypotheses developed in Chapter 3. Chapter 4 includes a discussion of the measurement of audit quality used in this thesis, a discussion of variables used in the models and the sample selection.

Chapter 4 Research methodology and sample selection

This chapter outlines the research methodology used in this thesis in order to test hypotheses that have been discussed in Chapter 3. This thesis uses quantitative research methods to investigate the impact of MAPR on audit quality in the Thai market. The sample selection is also discussed in this chapter. The chapter begins with Section 4.1 which describes the measurement of audit quality. Then, Section 4.2 presents this thesis' models developed from prior studies in MAPR so to test the hypotheses. The measurements of variables used in the regression models are also described in this section. Section 4.3 outlines the sample selection process. Finally, Section 4.4 summarises and concludes the chapter.

4.1 Measurement of audit quality

The MAPR requirement is thought to improve audit quality by minimising the familiarity threat between a lead audit partner and the company's management (IESBA, 2012). This is thereby expected to promote auditor independence and facilitate the auditor having a higher chance of detecting and reporting material misstatements in the financial statements (Chen et al., 2008; Myers et al., 2003); that is, a new lead audit partner with a fresh perspective and greater auditor independence is expected to be able to better discover material misstatements in financial reports, which increases the financial statements quality and it is an indicator of better audit quality (Christensen et al., 2016; Fargher et al., 2008; Harris, 2012; Lee, 2015; Myers et al., 2003; Stakebrand, 2016).

Audit quality is difficult to measure directly. It is multifaceted concept (as discussed in Chapter 2, Section 2.2), and generally, for research purposes, the actual audit fieldwork is inaccessible (as discussed in Chapter 2, Section 2.3.2) (Francis, 2011; Kitiwong, 2014). The majority of prior studies related to MAPR have used ex-post data to capture audit quality, such as financial reporting/financial statements quality (Johnson et al., 2002; Myers, Myers, Palmrose, & Scholz, 2004), and earnings quality (Chen et al., 2008; Chi

& Huang, 2005; Chi et al., 2009; Kitiwong, 2014; Lee, 2015; Myers et al., 2003; Stakebrand, 2016), as proxies for audit quality.

Financial statement quality can be measured by using discretionary accruals (DA) as a proxy for audit quality. According to agency theory, the company's management generally attempts to respond to shareholders' demands through the company's earnings. When the company's performance does not meet the shareholders' expected earnings level, management may manage the financial statements or resort to earnings management through DA (Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Chen et al., 2008; Dechow, Sloan, & Sweeney, 1995; Harris, 2012; Jones, 1991; Myers et al., 2003); in other words, a higher audit quality can mitigate management's opportunity to manage companies' earnings (Becker et al., 1998; Chen et al., 2008; Harris, 2012; Johnson et al., 2002; Myers et al., 2003). In addition, previous studies on DA have found that higher DA levels are related to qualified audit opinions (Bartov, Gul, & Tsui, 2001) and audit failure (Geiger & Raghunandan, 2002), which supports the notion that DA can indirectly measure financial reporting quality, and thus audit quality.

Many previous studies have employed DA to examine the effectiveness of the MAPR requirement in various contexts, such as in the U.S. market (Litt et al., 2014; Matthews, 2012), the Australian market (Fargher et al., 2008; Goodwin & Wu, 2016), and the Taiwanese market (Chi & Huang, 2005; Chi et al., 2009; Chi et al., 2017).

The MAPR requirement, by introducing a new lead audit partner and terminating a long association with the client, is thought to indirectly enhance financial statements quality by minimising the chance of management misstating a company's financial performance through DA, thus increasing audit quality. Based on this rationale, this thesis uses DA as the measurement of audit quality.

The measurement of DA starts with the measurement of total accruals (TA). DA is calculated by subtracting non-discretionary accruals (NDA) from TA. NDA is a

component of TA, which is not subject to management's decisions. As such, DA is measured by:

$$DA_{it} = TA_{it} - NDA_{it} \quad (1)$$

where:

DA_{it} = Discretionary accruals in year *t* for the company *i;*
TA_{it} = Total accruals in year *t* for the company *i;*
NDA_{it} = Non-discretionary accruals in year *t* for the company *i*.

This basic calculation is the foundation of the models used in this thesis to test the hypotheses and investigate factors that possibly enhance audit quality in the Thai capital market, as explained in the next section.

This thesis uses alternative proxies for audit quality to reaffirm the effectiveness of MAPR on audit quality of listed companies in Thailand. Following prior studies related to MAPR, the DA signs (Chi et al., 2009; Myers et al., 2003), the current accruals (CA) (Cameran et al., 2016; Carey & Simnett, 2006; Chi et al., 2009; Myers et al., 2003), a modified audit opinion (Firth et al., 2012; Habib, 2013; Salleh & Jasmani, 2014) and a going-concern audit opinion (Carey & Simnett, 2006; Geiger & Raghunandan, 2002) are employed to tests for robustness of this thesis' findings.

Other proxies that have been used in previous research on audit quality as a consequence of MAPR include audit fees (Cameran et al., 2015; Ferguson, Lam, & Ma, 2019; Kwon et al., 2010, 2014; Stewart et al., 2016), audit hours (Bedard & Johnstone, 2010; Cameran et al., 2015; Kwon et al., 2014), and audit adjustment transactions (Lennox et al., 2014). These proxies of audit quality are not used in this thesis due to the lack of audit fees data in the Thai context for the period under observation. Audit fees have not been publicly disclosed in Thailand from 2006 to 2014. Further, audit hours and audit adjustments are not generally available for observation, including in Thai context and thus also not available to be analysed in this thesis.

In conclusion, this thesis uses DA as audit quality proxy in order to examine the effectiveness of multiple MAPRs in Thai market. Other alternative proxies for audit quality, such as the DA signs and modified audit opinions have also been employed in this thesis as additional analysis. The results of those analyses are explained in Section 4.2.5.

4.2 The thesis' models

This section provides and discusses the development of the models used to test whether the MAPR requirement improves audit quality in the Thai context. These models are developed and modified from prior studies that specifically examine the effects of the rotation of a lead audit partner on audit quality.

4.2.1 MAPR and audit quality

Several previous studies observed the effectiveness of lead audit partner rotation on audit quality, as discussed in Chapter 3, Section 3.1.3. For example, Chi et al.'s (2009) model was based on Myers et al.'s (2003) study, which examined Taiwanese listed companies. They used the level of DA as measured by Kothari et al. (2005) as a proxy for audit quality and in conjunction with the MAPR requirement. This was followed by other MAPR studies (Arthur et al., 2017; Chen et al., 2008; Kwon et al., 2014; Litt et al., 2014). Following these studies, this thesis uses a modified Chi et al. (2009) model to test H1 as outlined in Chapter 3, i.e. to assess the effectiveness of MAPR on audit quality in the Thai capital market.

In Thailand, a maximum of a five-year MAPR has been a requirement since 2006. Therefore, by including listed companies having MAPR from 2006 to 2017, this thesis is able to examine all three periods of MAPR. In order to test the effectiveness of MAPR over that time, this thesis observes the effects of a different number of MAPRs on audit quality. The listed companies having MAPR are categorised into three groups: 1 MAPR, 2 MAPR and 3 MAPR. The 1 MAPR group is the listed companies that experienced only

one MAPR over the 12-year observation period. The companies in the 3 MAPR category experienced three periods of MAPR that occurred either in the years 2006, 2011 and 2016, or in the years 2007, 2012 and 2017. Listed companies with no MAPR are excluded from the sample in this thesis.

The level of DA measured at different events of MAPR is inferred as the audit quality level at the occurrence of that MAPR event. The level of DA is expected to be low in the transition period of MAPR; that is, every subsequent MAPR promotes auditor independence, enables the rotated audit partner to better detect material misstatements and financial reporting manipulation, and enables collection of sufficient and appropriate audit evidence, thus improving financial statements quality and indirectly indicating a change in audit quality. Hence, the following model is adopted to examine the relationship between MAPR and the audit quality for Thai listed companies, as expressed by:

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta\ Year_{it} + \varepsilon_{ij} \quad (2)$$

where:

Dependent variable:

DA_{it} = DA that are calculated by performance-matched abnormal accruals measures by Kothari et al. (2005) in year *t* for the company *i*;

Independent variable:

$MAPR_{it}$ = an indicator set to 1 if observations are from 1 MAPR or 2 MAPR or 3 MAPR samples, and set to 0 otherwise in year *t* for the company *i*;

Control variables:

$BIG4_{it}$ = an indicator set to 1 if the audit firm is one of the Big 4 audit firms, and set to 0 otherwise in year *t* for the company *i*;

AGE_{it} = number of years since the listed company was listed in the Stock Exchange of Thailand in year *t* for the company *i*;

$SIZE_{it}$	= the natural logarithm of total assets of the listed company in year *t* for the company *i*;
$INDGROW_{it}$	= $\Sigma Sales_{i,t}/ \Sigma Sales_{i,t-1}$ by the SET sectors in year *t* for the company *i*;
CFO_{it}	= the cash flow from operating activities of the company in year *t* for the company *i*;
$LOSS_{it}$	= an indicator set to 1 if listed company has net loss, and set to 0 otherwise in year *t* for the company *i*;
LEV_{it}	= long-term debts plus current portion of long-term debt divided by total assets in year *t* for the company *i*;
$INDUS_{it}$	= indicator variables for each industry in the sample period;
$Year_{it}$	= indicator variables for each year in the sample period;
ε_{it}	= error term
i	= 1,…, i company index; and
t	= 1,…, t year index for which ranges over investigated period.

The following subsections discuss the models and measurements used to capture variables in Equation (2) in this thesis.

4.2.1.1 Dependent variable – The estimation of DA

DA are widely used as a measurement of audit quality in accrual-based models following a lead audit partner rotation as the MAPR requirement. This is the case with the Jones model by Jones (1991) (DeFond & Subramanyam, 1998; Johnson et al., 2002; Kitiwong, 2014; Myers et al., 2003), the modified Jones model by Dechow et al. (1995) (Chen et al., 2008), and the performance-matched modified Jones model by Kothari et al. (2005) (Arthur et al., 2017; Bandyopadhyay et al., 2014; Chi et al., 2009; Litt et al., 2014; Matthews, 2012).

The Jones model estimates that NDA would be constant in the event year by controlling companies' economic circumstances, such as the change in revenue and the level of property, plant and equipment (PPE). However, some prior studies criticise that model saying that it cannot detect DA when a company commits earnings manipulation through revenue (Dechow et al., 1995; Myers et al., 2003). Dechow et al. (1995) developed the

modified-Jones model to minimise the limitations of the original Jones model. Their model assumes that all credit sales are derived through earnings management; it adjusts the change in revenue with a change in accounts receivables in any event year. The study by Kothari et al. (2005) criticised the modified-Jones model because there is a limitation in measuring DA when a company has significant growth in the event year, such as in the year of an initial public offering (IPO). For this reason, Kothari et al. (2005) developed and proposed a cross-sectional modified-Jones model, which matches the company's performance by including the return on assets (ROA) ratio in the modified-Jones model. Their study's results confirm that "the performance-matched DA" improves the reliability of detecting DA.

Since then, many studies of the MAPR requirement have used the performance-matched DA measures developed by Kothari et al. (2005) to evaluate audit quality in relation to the MAPR requirement (Arthur et al., 2017; Bandyopadhyay et al., 2014; Chi et al., 2009; Litt et al., 2014; Matthews, 2012). The study by Chi et al. (2009), for example, observes absolute and signed performance-matched DA as audit quality proxies after MAPR. They hypothesised that listed companies subject to a lead audit partner rotation would show a lower DA which indirectly indicates higher audit quality.

Consistent with prior MAPR studies that suggest their ability to accurately measure DA of companies with extreme performance, this thesis employs the performance-matched DA model by Kothari et al. (2005) to measure DA estimation of listed companies following MAPR so as to assess the audit quality in Thai capital market. The performance-matched DA model used in this thesis is:

$$(TA_{it}/Asset_{it-1}) = \delta_0 + \delta_1(1/ASSET_{it-1}) + \delta_2 (\Delta SALES_{it} /Asset_{it-1}) + \delta_3 (PPE_{it}/Asset_{it-1}) + \delta_4 ROA_{it} + \varepsilon_{it} \quad (3)$$

where:

TA_{it} = total accruals which is calculated by the net income minus cash flow from operating activities (NI_{it} – CFO_{it}) in year *t* for the company *i;*

$\Delta SALES_{it}$ = the change in sales which is calculated by a change in sales minus a change in accounts receivable ($\Delta SALES - \Delta AR_{it}$) in year *t* for the company *i;*

PPE_{it} = property, plant and equipment – net in year *t* for the company *i;*

ROA_{it} = return on assets which is calculated by net income divided by total assets in year *t* for the company *i;*

$Asset_{it-1}$ = total assets in year *t-1* for the company *i*;

ε_{it} = error term.

The error term from Equation (3) is used in Equation (2) as a dependent variable, DA.

Even though DA from Equation (1) is broadly employed as a proxy of audit quality, some researchers criticised this DA as having some 'noisy' effects that may produce biased results (Ball, 2013; Chi et al., 2009; Matthews, 2012; McNichols & Stubben, 2018). For example, Ball (2013) documented that the level of DA is not plausibly associated with the size of earnings. Similarly, a study by Jackson (2018) pointed out that DA measurements are not related to size of earnings management and managerial manipulation. Further, a study by McNichols and Stubben (2018) criticised that DA has a low explanation power of results, and also biases for certain non-random samples. In this regard, this thesis employs other alternative measurements to use as proxies of audit quality such as the DA signs (Chi et al., 2009), the current accruals (CA) (Chi et al., 2009; Myers et al., 2003), a modified audit opinion (MAO) (Firth et al., 2012; Salleh & Jasmani, 2014), a going-concern audit opinion (GCO) (Carey & Simnett, 2006; Geiger & Raghunandan, 2002; Litt et al., 2014), and abnormal working capital accruals (AWCA) (Carey & Simnett, 2006; DeFond & Park, 2001). These alternative audit quality measurements as well as the sensitivity tests in order to confirm the robustness of the thesis, will be discussed in Section 4.2.5.

4.2.1.2 Independent variables – Mandatory audit partner rotation (MAPR)

The MAPR is a requirement in many countries to encourage audit quality as it limits over-familiarity between a lead audit partner and the management of the audited company. A long auditor tenure is seen as likely to increase the close auditor-client relationship (Chi & Huang, 2005; Dopuch et al., 2001). In the long audit tenure situation, the lead audit partner might overlook the tendency of management to manage company earnings using DA to achieve their earnings targets (Chen et al., 2008; Dechow et al., 1995; Harris, 2012; Jones, 1991; Myers et al., 2003). The lead audit partner might also be pressured to issue a favourable audit report (Dopuch et al., 2001) due to the extended and recurring engagement with the same client (DeAngelo, 1981a; Dopuch et al., 2001), as well as to ensure the audit fees are secured (Chi & Huang, 2005; Stakebrand, 2016). All of those factors can lead to decreased audit quality.

By limiting the tenure through lead audit partner rotation, the IESBA (2012) and prior studies suggest greater auditor independence can be achieved (Francis, 2004; Healey & Kim, 2003; Lennox et al., 2014) and audit quality can be improved, which is then measured by the level of DA and its sign (positive or negative) (Chen et al., 2008; Chi et al., 2009).

In summary, the change of the audit partner's name after five consecutive years of auditing the same listed company indicates application of MAPR and multiple MAPRs for the purposes of this thesis. As presented in Appendix 1, the change of the audit partner name is extracted from the actual auditor's report. In Thailand, the report must be certified by a lead audit partner, so the name of the lead audit partner and the audit firm's name are therefore disclosed. In order to measure audit quality, this thesis examines the relationship between the level of DA and the different numbers of MAPR experienced by Thai listed companies from 2006 to 2017. The companies are categorised as: (1) those that had one period of MAPR (1 MAPR); (2) those that had two MAPR (2 MAPR); and (3) those that had three MAPR (3 MAPR), as shown in Appendix 2. For each category, the associated MAPR is set as equal to 1 and set to 0 otherwise. This is an independent variable and tests H1.

4.2.1.3 Control variables

Previous studies in the literature related to MAPR and audit quality have outlined some other factors found to be significant in relation to audit quality. These are discussed below.

Audit firm size (BIG4)

Audit firm size is denoted as BIG4 or non-Big 4 in this thesis. The large audit firms (generally referred to as the Big 4 audit firms) are Deloitte & Touche, Ernst & Young, KPMG, and PricewaterhouseCoopers. The BIG4 firms play a major role in influencing audit quality (Arthur et al., 2017; Chayasombat, 2010; Chi & Huang, 2005; DeAngelo, 1981b; Francis & Yu, 2009; Hamilton et al., 2005; Kitiwong, 2014). As discussed in Chapter 3, Section 3.2, larger audit firms have greater accumulated in-house knowledge and experience, better audit methodologies, and are typically industry specialists who can provide higher audit quality than the small and medium size audit firms (Chi & Huang, 2005; Francis & Yu, 2009).

In the Thai stock market, there were 27 audit firms (230 individual audit partners) in 2017, including the Big 4 audit firms and the Securities and Exchange Committee of Thailand (SECT)'s certified local audit firms (non-Big 4 audit firms). The data on those firms is presented in Appendix 1. Unlike other markets, such as the Taiwanese market (Chi & Huang, 2005; Chi et al., 2009), and the Australian market (Arthur et al., 2017), Big 4 audit firms are not the dominant audit service suppliers in the Thai market. In this sense, it is less likely that the Thai market would have higher audit quality compared to the markets where Big 4 audit firms are the major audit services suppliers.

Using DA as a proxy for audit quality, audit firm size is expected to have a negative relationship on the level of DA. Audit firm size is indicated by the audit firm's name disclosed in the auditor's report of listed companies. Audit firm size is equal to 1 if the audit firm is one of the Big 4 audit firms or 0 otherwise (Chen et al., 2008; Chi et al., 2009; Myers et al., 2003).

Listed companies' age (AGE)

The listed companies' age, denoted as AGE, has a significant effect on the level of DA. Previous studies have found that there are different levels of accruals based on a company's life-cycle (Chi et al., 2009; Lee, 2015; Matthews, 2012; Myers et al., 2003). Chi et al. (2009), for example, stated that there is less DA when the listed company's age increases; in other words, newer companies are most likely to be financially challenged and distressed. In this thesis, listed companies' age is calculated by the number of years since the listed company was listed on the SET. The listed companies' age is expected to have a negative relationship on the level of DA.

Listed companies' size (SIZE)

The listed companies' size, denoted as SIZE, is also a control variable considered in this thesis. Several prior studies have found evidence that larger companies are likely to have higher DA (Becker et al., 1998; Chi et al., 2009; Kwon et al., 2014; Matthews, 2012; Watts & Zimmerman, 1986), thus a positive relationship between SIZE and DA is expected. Consistent with previous studies, listed companies' size is measured by the natural logarithm of the total assets in this thesis.

Industries' growth (INDGROW)

The listed companies' industry growth is denoted as INDGROW. In this thesis, INDGROW is a controlled variable. The industries' growth is calculated by summarising the sales of all companies in the industry categorised by the Thai Stock Exchange in the current year ($\Sigma Sales_{i,t}$) divided by the summarised sales of all companies in the industry categorised by SET in the last year ($\Sigma Sales_{i,t-1}$). Previous studies have found a positive association between a company's growth (INDGROW) and DA (Kwon et al., 2014; Myers et al., 2003), which is examined in this thesis.

Cash flow from operating activities (CFO)

The cash flow from the operating activities of a listed company is denoted as CFO. This control variable is directly observed from the Cash Flow Statement. It is found that the listed companies with higher cash flows from operating activities are likely to have better financial performances (Myers et al., 2003). In addition, some studies also found a negative association between the level of DA and CFO (Dechow et al., 1995; Myers et al., 2003). This thesis thus expects CFO to be negatively related to DA.

Net loss (LOSS)

The net loss, denoted as LOSS, is observed as a control variable. The study by Matthews (2012) and Kwon et al. (2014) stated that a company with a net loss is likely to report small DA. This is because these companies tend not to report losses and the management has a lower incentive to manage DA (Francis & Yu, 2009). Therefore, this thesis expects LOSS to be negatively related to DA.

Listed companies' leverages (LEV)

The leverage, denoted as LEV, is also included in this thesis' model. Previous studies suggest that highly leveraged companies are likely to have strong incentives to manage earnings to avoid violating debt covenants (Carey & Simnett, 2006; Defond & Jiambalvo, 1994); thus, listed companies having a higher leverage may report a larger DA. The leverage in this thesis is measured by long-term debts plus the current portion of long-term debt divided by total assets. In this thesis it is expected that LEV is positively correlated with the level of DA (Defond & Jiambalvo, 1994; Matthews, 2012).

Industry (IND) and year (Year)

This thesis also includes the industry ($INDUS_{it}$) and year ($Year_{it}$) fixed-effects (Chayasombat, 2010; Kwon et al., 2014; Matthews, 2012) in order to control for the industry's risk differences and time-invariant confounding factors in the estimation of DA, which infers audit quality during the examined 12-year period.

Other factors

This thesis considers other factors that possibly impact on audit quality as control variables of listed companies having MAPR, such as current ratio (Kwon et al., 2014) and interest rate. However, these factors show a weak relationship with the level of DA and they decrease the explanatory power of the model; thus, current ratio and interest rate are not included in the final models used in this thesis.

4.2.2 Effects of auditor attributes on audit quality in combination with MAPR

This study also aims to study the impact of auditor attributes, both audit firm and audit partner attributes on audit quality in listed companies with MAPR. Based on prior studies, there are four further factors that can possibly impact on the audit quality of listed companies having MAPR.

Audit firm size (BIG4) is the first audit firm attribute. BIG4 is an impacting factor on audit quality of listed companies having MAPR as discussed in Chapter 3, Section 3.2. The model used in this thesis includes the BIG4 as an independent variable which is consistent with prior studies such as Chi et al. (2009) and Myers et al. (2003). The main model in this thesis is adapted to test H2a as discussed in Chapter 3, i.e. to test the effect of Big 4 audit firm on audit quality for listed companies having MAPR.

The second factor is audit firm industry specialist (AFSPEC). It is included in the main model to investigate the effect of audit firm attributes on audit quality related to MAPR, as discussed in Chapter 3, Section 3.3 (Christensen et al., 2016; Habib, 2011; Jaggi et al., 2012). In order to measure AFSPEC, Chi and Chin (2011) used audit firm market share (MS_AF), which is calculated by the total amount of total client sales that are audited by an audit firm in a year in each particular industry. The top two audit firms of each particular industry in a year are categorised to be AFSPEC in this thesis. The adapted main model is used to test H2b, that is, audit quality of listed companies having MAPR improving when audited by AFSPEC.

The third factor is audit partner industry specialist (APSPEC). Studies by Chi and Chin (2011), Liu (2017), and Zerni (2012), found that APSPEC can improve audit quality for their new clients as they have accumulated client-specific knowledge and experience from other or prior clients. Similar to prior studies, this thesis includes APSPEC in the main model to observe the impact on audit quality. APSPEC in this thesis is measured by an individual lead audit partner's market share (MS_AP), adapted from Chi and Chin (2011). It is calculated by the total amount of the client's total sales that are audited by each lead audit partner in a year, in each particular industry. The top two lead audit partners in each industry in a year are categorised as APSPECs. The adapted main model is used to test H2c that states that there is an audit quality improvement for companies with MAPR when audited by APSPEC.

The last factor is the audit partner's busyness (BUSY). Following prior studies, this factor is found to have a negative effect on audit quality for listed companies having MAPR, as described in Chapter 3, Section 3.2 (Goodwin & Wu, 2016; Gul et al., 2017; Sundgren & Svanström, 2014). The study by Goodwin and Wu (2016) used the number of listed companies in an individual audit partner's portfolio as a proxy for audit partner's busyness. They expected that a lead audit partner who has more clients might not be able to manage the time on their audits properly, which is then less likely to improve audit quality for the client. Similarly, BUSY in this thesis is measured by the number of listed companies who are clients of each individual audit partner for each of the accounting years under observation. The adapted main model is used to test H2d that is: the audit quality of listed companies with MAPR is improved when the audit is undertaken by an audit partner who is not busy.

The control variables, except for BIG4, are based on the model used in Section 4.2.1; thus, this thesis uses the following model to examine the influence of audit firm and audit partner attributes on the audit quality of Thai listed companies having MAPR:

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AFSPEC_{it} + \beta_4 APSPEC_{it} + \beta_5 BUSY_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 INDGROW_{it} + \beta_9 CFO_{it} + \beta_{10} LOSS_{it} + \beta_{11} LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij} \quad (4)$$

where:

Independent variables

$AFSPEC_{it}$ = an indicator set to 1 if the company's audit firm is an audit firm industry specialist, and set to 0 otherwise in year *t* for the company *i*

$APSPEC_{it}$ = an indicator set to 1 if the company's audit partner is an audit partner industry specialist, and set to 0 otherwise in year *t* for the company *i;*

BUSY = an audit partner's busyness is calculated by the natural logarithm of the number of listed clients in an audit partner's client portfolio in a year.

Equation (4) measures the influence of auditor attributes by investigating the coefficient of BIG4, AFSPEC, APSPEC, and BUSY testing H2a, H2b, H2c and H2d, respectively. The overall findings of the tests are to support H2. The significance of β_2 - β_5 means that those variables are associated with audit quality.

4.2.3 Effect of the first mandatory audit partner rotation (FMAPR) preceding voluntary audit partner rotation (VAPR)

The first-time adoption of MAPR (FMAPR) is scrutinised in prior research, as discussed in Chapter 3, Section 3.3. The study by Chi et al. (2009), for example, focused on the impact of FMAPR on audit quality post-adoption for the first time in the Taiwanese capital market in 2004. They compared the audit quality of listed companies before MAPR was required and under the MAPR regime. Similarly, this thesis applies the first time MAPR adoption in the model to test H3 outlined in Chapter 3, Section 3.3; that is FMAPR improves audit quality of Thai listed companies. However, and unlike the previous studies, this thesis compares the same listed companies in the Thai capital market with those under both the VAPR and MAPR regimes to better measure the effectiveness of the MAPR requirement.

In this study, the VAPR regime is the period from 2001 to 2005, i.e. five years prior to compulsory MAPR implementation. The MAPR regime period is the period from 2006 to 2010. The comparison is aimed at capturing the effectiveness of the FMAPR on audit quality. It is expected that the level of DA after FMAPR adoption is lower than in the period of VAPR, as it is expected that FMAPR can increase the audit quality in Thailand.

The following model is used to examine the relationship between FMAPR and audit quality for Thai listed companies:

$$DA_{it} = \beta_0 + \beta_1 FMAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij} \quad (5)$$

where:

Independent variables – the first adoption of MAPR

$FMAPR_{it}$ = an indicator set to 1 if observations are from companies under the MAPR regime, and set to 0 otherwise in year *t* for the company *i*.

Equation (5) focuses on the periods of FMAPR that is to provide evidence for H3. The coefficient of FMAPR indicates the difference in audit quality between the periods of the VAPR and MAPR regimes in the Thai capital market. The significance of β_1 means that there is a difference in the audit quality under the MAPR regime when the MAPR is first introduced.

The next section presents additional tests and preliminary test used in this thesis.

4.2.4 Additional tests and preliminary test

This thesis provides additional analyses to strengthen the results of the main tests of the impact of MAPR on audit quality in Thai market. These supplementary tests include the additional variables to investigate their potential effect on audit quality of listed companies having MAPR. In order to gain further insights related to H1, three additional variables are added to Equation (2) in this thesis: the interaction of MAPR and audit firm size (MAPR*BIG4), the interaction of MAPR and listed companies' size (MAPR*SIZE), and audit firm rotation (AFR).

*4.2.4.1 Interaction effects of MAPR*BIG4*

Prior studies have shown that there is an impact from the interaction between audit partner tenure and audit firm size (Chi & Huang, 2005; Lee, 2015) on audit quality. There is, however, a limited number of studies including them as moderating factors for audit quality. This thesis explores the effect of the interaction of MAPR*BIG4 on the audit quality of listed companies having MAPR in Thailand. The interaction effect of MAPR*BIG4 is expressed as:

$$\begin{aligned} DA_{it} = {} & \beta_0 + \beta_1 MAPR_{it} + \beta_2 MAPR_{it} * BIG4_{it} + \beta_3 BIG4_{it} + \beta_4 AGE_{it} \\ & + \beta_5 SIZE_{it} + \beta_6 INDGROW_{it} + \beta_7 CFO_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} \\ & + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij} \end{aligned} \quad (6)$$

where:

Independent variables

$MAPR_{it} * BIG4_{it}$ = the interaction of MAPR and audit firm size in year *t* for the company *i*.

Equation (6) investigates the coefficient of MAPR*BIG4. The significance of β_2 means that MAPR*BIG4 is associated with audit quality.

*4.2.4.2 Interaction effects of MAPR*SIZE*

The interaction of MAPR and listed company size is added to the tests in this thesis to investigate its impact on audit quality. Prior studies found the interaction effects of MAPR and SIZE did not have a positive impact on audit quality. Larger companies tend to have complex operations and multiple lines of business (Carcello & Nagy, 2004b; Gipper et al., 2018; Litt et al., 2014), and thus influence the quality of the audits performed on their financial statements. The model used in this thesis includes the interaction of MAPR*SIZE to the Equation (2), and it is presented as:

$$\begin{aligned} DA_{it} &= \beta_0 + \beta_1 MAPR_{it} + \beta_2 MAPR_{it} * SIZE_{it} + \beta_3 BIG4_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} \\ &+ \beta_6 INDGROW_{it} + \beta_7 CFO_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} + \lambda INDUS_{it} \\ &+ \delta Year_{it} + \varepsilon_{ij} \end{aligned} \quad (7)$$

where:

Independent variables

$MAPR_{it} * SIZE_{it}$ = the interaction of MAPR and listed companies' size in year *t* for the company *i*.

Equation (7) therefore investigates the coefficient of MAPR* SIZE. The significance of β_2 means that MAPR* SIZE is associated with audit.

4.2.4.3 Audit firm rotation (AFR)

The impact of AFR on the audit quality of listed companies having MAPR is also observed in this thesis. The literature seems to suggest that AFR is likely to moderate the audit quality (Gipper et al., 2018) and possibly impact on it (Cameran et al., 2015; Corbella, Florio, Gotti, & Mastrolia, 2015). This is because the change of both the audit firm and the lead audit partner might disadvantage the subsequent audit quality due to a loss of client-specific knowledge by the incoming audit partner which is compounded by the introduction of a new audit firm. Previous studies have not examined the effect of AFR in the Thai market. Thus, this thesis includes AFR in the model:

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 AFR_{it} + \beta_3 BIG4_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 INDGROW_{it} + \beta_7 CFO_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij} \quad (8)$$

where:

Independent variables – an audit firm rotation

AFR_{it} = an indicator set to 1 if the company's audit firm is rotated, and set to 0 otherwise in year *t* for the company *i.*

Equation (8) investigates the coefficient of AFR. The significance of β_2 means that AFR is associated with audit quality.

Table 4.1 summarises the expected sign of the variables used in this thesis, based on prior studies that examined MAPR and DA as a proxy for audit quality.

Table 4.1: Expected sign of variables in relation to the level of DA as a proxy of audit quality

Variables	Model	Expected sign related to DA
Independent variables		
MAPR	(2)	–
BIG4	(2)	–
APSPEC	(4)	–
BUSY	(4)	+
AFSPEC	(4)	–
FMAPR	(5)	–
Control variables		
AGE	All	–
SIZE	All	+
INDGROW	All	+
CFO	All	–
LOSS	All	–
LEV	All	+
Additional variables		
MAPR*BIG4	(6)	–
MAPR*SIZE	(7)	–
AFR	(8)	+

4.2.4.4 Preliminary test

This thesis conducts preliminary tests (pre-test) to explore some initial results of the thesis. The pre-test compares audit quality proxies by using DA and making comparisons between listed companies having MAPR and listed companies having non-mandatory audit partner rotation (NMAPR) from 2006 to 2017. Some previous studies, such as Chi et al. (2009) and Matthews (2012) performed similar analysis. The literature suggests that an incoming audit partner following MAPR can limit the close auditor-client relationship between the former lead audit partner and the client and in that way, the familiarity threat that can impair audit quality, is mitigated (e.g. Chi & Huang, 2005; Dopuch et al., 2001). Further, a new lead audit partner is assumed to provide a new perspective leading to better detection of material misstatements in companies' financial statements, in comparison with the outgoing lead audit partner who has provided audit services to the same client

for a number of consecutive years (Arthur et al., 2017; Chi et al., 2009; Kitiwong, 2014; Matthews, 2012). In this thesis, such pre-testing uses the sample of listed companies having MAPR as the observation to form a matched set or a benchmark as compared to the sample of non-mandatory audit partner rotation (NMAPR) firms. This is presented as:

$$DA_{it} = \beta_0 + \beta_1 MAPR/NMAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta\ Year_{it} + \varepsilon_{ij} \quad (9)$$

where:

Independent variable:

$MAPR/NMAPR_{it}$ = an indicator set to 1 if observations are from MAPR samples, and set to 0 otherwise in year *t* for the company *i*;

Equation (9) investigates the coefficient of MAPR/NMAPR in the pre-test. The significance of β_1 means that there is a difference in the audit quality of listed companies having MAPR compared to listed companies having NMAPR.

The MAPR sample of 417 firm-year observations is discussed in Section 4.3.1. To match the sample, propensity score matching (PSM) technique is used to conduct one-on-one matching between multiple MAPRs sample and NMAPR sample (Shipman, Swanquist, & Whited, 2017). PSM is expected to decrease self-selection bias (Shipman et al., 2017). NMAPR sample is matched by companies' total assets of MAPR sample in order to pair similar variables of observation. Moreover, total assets seem to be a significant factor related to level of DA which is the audit quality proxy in this thesis (Becker et al., 1998; Chi et al., 2009; Kwon et al., 2014; Matthews, 2012; Watts & Zimmerman, 1986). Therefore, the final sample selection for comparison sample between MAPR and NMAPR consists of 834 firm-year observations.

This pre-test did not find evidence that MAPR is associated with audit quality proxied by DA when compared to NMAPR. The partial results of the regression analysis of the effect

of MAPR on audit quality measured by DA as compared to NMAPR sample are presented in Table 4.2. The full results are reported in Appendix 14.

Table 4.2: Partial results of effect of MAPR on audit quality measured by DA comparing to NMAPR sample

$$DA_{it} = \beta_0 + \beta_1 MAPR/NMAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	FMAPR Coefficient (t-statistic)	
Test variables			
MAPR/NMAPR	-	0.0041 (0.9123)	
Adj. R^2		0.601	
F-value		157.594	***
Observations		834	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

It is observed that there is a significant difference in terms of the means of the control variables between MAPR and NMAPR sample such as companies' age (AGE) and net loss (LOSS). These results show that NMAPR may not make for a good comparison sample to provide evidence on the effects of MAPR on audit quality in the Thai market. Since the aim of this thesis is to find evidence of whether multiple MAPRs have an effect on different audit quality levels, the sample used in this study continues to focus in the main analysis only on companies that experienced different number of MAPR in Thai market in order to test H1. The selection of MAPR sample in this thesis is further discussed in Section 4.3.1.

The next section discusses the sensitivity tests included in this thesis.

4.2.5 Sensitivity tests

The robustness of results is further tested by conducting sensitivity tests based on the alternative proxies for audit quality, as discussed in Section 4.2.1.1. Following prior studies, there are several other different measurements of audit quality. For example, the DA signs (Chi et al., 2009; Myers et al., 2003) and the current accruals (CA) (Cameran et al., 2016; Carey & Simnett, 2006; Chi et al., 2009; Myers et al., 2003). This thesis uses those proxies to measure audit quality to reaffirm the effectiveness of MAPR on audit quality of listed companies in Thailand.

4.2.5.1 The DA signs

A lead audit partner might face different challenges in auditing clients with different levels of DA. In this thesis, not only is the raw value of DA considered, but also the signed (positive and negative) DA as part of the robustness test of the effectiveness of the MAPR requirement (Chi et al., 2009; Myers et al., 2003). Previous studies suggest that different signs of the DA indicate the constraints faced by a new lead audit partner in auditing income-increasing accruals and income-decreasing accruals. For example, a new lead audit partner appears to constrain extreme income-increasing accruals that management may use to inflate companies' earnings. In this way, MAPR potentially increases audit quality by limiting positive DA (Myers et al., 2003); thus, this thesis includes the signed amounts of DA (the positive DA (DA+), and the negative DA (DA–)), to evaluate audit quality following MAPR in the Thai market. Listed companies having MAPR are partitioned into two groups – listed companies having MAPR which have DA+ and listed companies having MAPR which have DA–, in order to reaffirm further the robustness of the Hypothesis 1 results. The DA+ and DA– are used in Equation (2) as an alternative to the dependent variable.

4.2.5.2 The current accruals (CA)

The CA is used as an audit quality proxy for additional tests in prior research (Cameran et al., 2016; Carey & Simnett, 2006; Chi et al., 2009; Myers et al., 2003). This is because companies are more flexible in using CA to manipulate earnings than long-term accruals

such as DA (Barua, Davidson, Rama, & Thiruvadi, 2010). In this way, CA can reflect the quality of financial statements, and thus the audit quality. For example, Myers et al. (2003), who conducted their study in the U.S. market, considered CA as a good proxy to investigate current accounting preferences in the financial statements by the company's management. The use of CA is supported by the Chi et al. (2009) study in the Taiwanese market, which used CA for robustness tests. This is because CA are susceptible to earnings quality and financial reporting quality and can indirectly indicate audit quality. Therefore, this thesis uses CA as another proxy for audit quality.

Prior studies by Myers et al. (2003) and Cameran et al. (2016) calculated CA as non-cash current assets minus non-financial current liabilities. All variables are scaled by average total assets, which is:

$$CA_{it} = ((\Delta CA_{it} - \Delta Cash_{it}) – (\Delta CL_{it} - \Delta STD_{it})) \quad (9)$$

where:

CA	= current accruals;
ΔCA	= change in current assets;
ΔCash	= change in cash and cash equivalents;
ΔCL	= change in current liabilities;
ΔSTD	= change in short-term note and current portion of long-term debt;
i	= 1,…, i company index; and
t	= 1,…, t year index which ranges over the investigation period.

The results of CA following Equation (9) are used in Equation (2) as a dependent variable in this thesis.

4.2.5.3 A modified audit opinion (MAO)

The MAO is employed as an additional audit quality measurement also based on previous studies (Firth et al., 2012; Habib, 2013; Salleh & Jasmani, 2014). This is because the MAO issued by the auditor conveys bad news about the listed companies (Francis, 2004).

A study by Firth et al. (2012) found that a lead audit partner following MAPR is associated with a significantly higher likelihood of an MAO, which is related to increased auditor reporting conservatism, and thus indicates higher audit quality (Firth et al., 2012). However, a study by Salleh and Jasmani (2014) found the opposite result in Malaysia due to an inadequate knowledge of a client's business by a new lead audit partner in the transition year of MAPR. These inconclusive results need further investigation.

Following Firth et al. (2012) and Salleh and Jasmani (2014), MAO is measured as:

MAO = an indicator set to 1 if sample receiving MAO, and set to 0 otherwise in year *t* for the company *i*.

The tests of MAO are used in Equation (2) as a dependent variable in this thesis.

4.2.5.4 A going-concern audit opinion (GCO)

The study by Carey and Simnett (2006) and Geiger and Raghunandan (2002) used the GCO as a proxy of audit quality to examine the impact of audit partner rotation. A recent study by Litt et al. (2014) and Geiger and Raghunandan (2002) measured audit quality by using the GCO in an MAPR regime in the U.S. market. They claim that the new lead audit partner who lacks knowledge and experience of a specific client is less likely to issue the GCO early in the year following an audit partner rotation, which indicates lower audit quality.

Following Carey and Simnett (2006) and Geiger and Raghunandan (2002), the GCO in this thesis is measured as:

GCO = an indicator set to 1 if sample receiving GCO, and set to 0 otherwise in year *t* for the company *i*.

The tests using GCO are in Equation (2) where GCO is used as a dependent variable.

4.2.5.5 Abnormal working capital accruals (AWCA)

Prior studies suggest that AWCA is a more powerful test than total accruals to identify extreme management reporting decisions. The AWCA are normal plus abnormal accruals (Carey & Simnett, 2006; DeFond & Park, 2001; Postma, 2016). Management may engage in AWCA in order to manage the financial performance of companies; thus, the higher level of AWCA means a lower level of audit quality (Carey & Simnett, 2006). The results of Carey and Simnett (2006) revealed that the higher level of AWCA indicates a lower audit quality in the early years of a new lead audit partner after MAPR.

Following Carey and Simnett (2006), the AWCA of this thesis is measured by:

$$AWCA_{it} = WC_{it} - [(WC_{it-1}/S_{it-1})*S_{it}] \quad (10)$$

where:

AWCA = abnormal working capital accruals;

WC_{it} = non-cash working capital in the current year computed as (current assets – cash and short-term investments) – (current liabilities – short-term debt);

WC_{it-1} = non-cash working capital in the prior year;

S_{it} = sales in current year; and

S_{it-1} = sales in prior year.

All variables are scaled by the current year's total assets. The AWCA from Equation (10) is used in Equation (2) as a dependent variable in this thesis.

The next section provides a discussion of the sample selection in the thesis.

4.3 Sample selection

There are two groups of samples used in this thesis: the sampled companies for the test of the effects of MAPR regime on audit quality, and the sample of companies that experienced both the MAPR and the VAPR regimes. Section 4.3.1 discusses the sample of companies that are used to test H1 to H2d. Section 4.3.2 discusses tests on audit quality in order to examine the first mandatory audit partner rotation (FMAPR) and confirm H3.

The financial information for the sample is retrieved from the data stream of Thomson Reuters. As mentioned earlier, the data on a lead audit partner's name, an audit firm's name and an auditor's opinion are hand-collected from the website of the Securities and Exchange Commission of Thailand (SECT) and the listed companies' financial statements. If a lead audit partner's name in a year *t* is not the same as the year from *t-1* to *t-5*, it is marked as MAPR or VAPR (when data is under the VAPR regime).

4.3.1 Samples of companies under the MAPR regime

The MAPR requirement became effective from 1 January 2006 for the companies listed on the Stock Exchange of Thailand; listed companies following MAPR in the period from 2006 to 2017 are thus the first sample group of this thesis. Since MAPR limits the appointment for a lead audit partner to five years, the sample in this study uses companies that experienced the maximum of three periods of MAPR in 2006, 2011 and 2016 or in the years 2007, 2012 and 2017. Therefore, the sampled companies in this study are limited to those that have experienced MAPR, as outlined in the sample selection process in Table 4.3.

Table 4.3: Sample data of listed companies under the MAPR regime on the Stock Exchange of Thailand

Descriptions		Companies	Firm-year observations
Number of companies listed on the Stock Exchange of Thailand		602	7,224
Less	Companies in financial entities segment	(59)	(708)
	Companies in property fund and REITs segment	(64)	(768)
	Companies with missing financial data	(23)	(1,113)
	Preliminary sample	*456*	*4,635*
	Companies that are state-owned enterprises	(5)	(60)
	Sub-sample selection	*451*	*4,575*
	New companies yet to rotate a lead audit partner according to MAPR requirement [a]	(70)	(864)
	Companies with prior rotation according to MAPR requirement [b]	(95)	(1,140)
	Firm-year observations out of sequence with MAPR [c]		(2,152)
	Firm-year observations with extraordinary transactions [d]		(2)
	The study's sample [e]	**286**	**417**

[a] These newly-established listed companies are yet to rotate a lead audit partner in the period under investigation in this thesis.

[b] These listed companies are outside the usual MAPR rotation schedule; that is, they have had the voluntary lead audit partner rotations prior to five consecutive years and are not in the scope of this thesis.

[c] These listed companies are outside the MAPR period. The companies that make up these MAPR observations are in the second year to the fifth year of the same lead audit partner appointment and are out of sequence with the rest of the sample. They are not in the scope of this thesis.

[d] There are two unusual accounting transactions that significantly affected the net incomes of the companies in the sample and impact on the level of DA used as an audit quality measurement:

(1) The first is to do with the Robinson Department Store in 2006. The Robinson Department Store in 2006 had an extraordinary transaction as it recorded a reversal of impairment loss on assets as other revenue in their financial statements. The amount of this non-recurring item was 82% of their net income and occurred only once in the observation period in 2006.

(2) NEP Realty and Industry in 2012 recorded an advance payment from a customer as revenue in their financial statements. The amount of this extraordinary item was 96% of their net income and occurred only once in the observation period in 2012.

As shown in Table 4.3, there are 7,224 firm-year observations from 602 listed companies. Due to their special regulatory requirements and the use of different accounting treatments there are a number of firm-year observations that had to be eliminated from that sample. A total of 708 firm-year observations (59 companies) in the financial sector, 768 firm-year observations (64 companies) in property funds, and real estate investment trusts (REITs) have been eliminated from the sample of this thesis. This process is consistent with prior studies (Chi et al., 2009; Kwon et al., 2014). The 1,113 firm-year observations (23 companies) with missing data are also excluded from the study's sample. The elimination process yielded 4,635 firm-year observations (456 companies) for the preliminary sample. A further 60 firm-year observations from five companies are omitted because these listed companies are state-owned enterprises that are not required to rotate their lead audit partners. The final sub-sample totals 4,575 firm-year observations from 451 listed companies.

The next process is to identify MAPR companies in the Thai capital market over the observed 12-year period. When the MAPR requirement was imposed in 2006, listed companies that had the same lead audit partner with a maximum of five consecutive years (before 2006) had to rotate their lead audit partner. This study includes only listed companies that had rotated their lead audit partner after five consecutive years since the MAPR was mandated. As such, a total of 864 firm-year observations (70 companies) are excluded. These are newly-established listed companies yet to rotate a lead audit partner over this period. The 1,140 firm-year observations from 95 listed companies are further eliminated because they are outside the usual MAPR schedule. These listed companies voluntarily rotated their lead audit partner prior to the termination of five consecutive years as an MAPR requirement and thus, they are excluded.

A further 2,152 firm-year observations are omitted because they are not in the MAPR transition year. These listed companies are outside the MAPR period. They are in the second year to the fifth year of MAPR and remain with the same lead audit partner. These companies are out of sequence with MAPR with the rest of the sample; thus, the observations that have no rotation of a lead audit partner are excluded because they may

not accurately reflect the impact of the MAPR requirement after three maximum rotations.

Lastly, two firm-year observations are deleted because these samples had a non-recurring item that had a significant effect on companies' net incomes. This unusual transaction potentially impact on the level of DA used as the audit quality measurement. Further, these infrequent transactions occurred only once each in the observation period; thus, the final sample for this study consists of 417 firm-year observations of 286 listed companies as presented in Appendix 2.

The aim of this thesis is to find evidence on whether multiple rotations have an effect on different audit quality levels. Thus, the sample used in this study focuses only on listed companies that have experienced multiple number of MAPRs. That means, listed companies having non-mandatory audit partner rotation (NMAPR) and using voluntary rotation of lead audit partner under the MAPR regime are therefore, excluded. Prior studies examined only one MAPR rotation (Phadungdet, 2014; Thapayom, 2012) and two MAPR rotations (Liu et al., 2017). This thesis focuses on the same listed companies having multiple MAPR, being the maximum of three rotations under MAPR regime, over the 12-year observation period. These selection parameters reduce the available sample for this kind of observation to 417 firm-year observations.

Table 4.4 shows the industry group, firm-year observation, and MAPR distribution of the sample used in this study as per the SET classification.

Table 4.4: Industry group, year and the number of MAPR distributions in the study's sample

Industry group	Total	
	Firm-year observation	Percentage
Panel A: Industry distribution		
Agro & Food Industry	42	10%
Consumer Products	49	12%
Industrials	72	17%
Property & Construction	95	23%
Resources	23	5%
Services	91	22%
Technology	45	11%
Total sample	**417**	**100%**
Panel B: Year distribution		
Year	**Firm-year observation**	**Percentage**
2006	67	16%
2007	26	6%
2008	20	5%
2009	19	5%
2010	23	6%
2011	48	12%
2012	26	6%
2013	40	9%
2014	27	6%
2015	39	9%
2016	46	11%
2017	36	9%
Total	**417**	**100%**
Panel C: The number of MAPR distributions		
	Number of Companies	**Firm-year observation**	**Percentage of observation**
1 MAPR	169	169	40%
2 MAPRs	102	203	49%
3 MAPRs	15	45	11%
Total	**286**	**417**	**100%**

As shown in Table 4.4, Panel A, the Property & Construction group is the major industry in this study, with 95 firm-year observations in that industry group (making up 23% of the total sample observations). The Service group is the second largest industry of the sample and has 91 firm-year observations (22% of the total sample observations). The

smallest industry group of the sample is the Resource group, which contains 23 firm-year observations (5% of the total sample observations). Major industry groups are consistent with prior studies in the Thai context (Thapayom, 2012). Other Thai studies have investigated smaller samples and shorter periods under the MAPR regime in. For example, the study by Thapayom (2012) examined 335 firm-year observations over five years (from 2006 to 2010) and the study of Phadungdet (2014) studied 235 firm-year observations over five years (from 2009 to 2013). Further, these Thai studies included only one period of MAPR. This thesis therefore provides more recent industry evidence and it is also the first longitudinal Thai study that incorporates three complete audit partner rotations from 2006 to 2017. In this way, this thesis provides a benchmark for future studies and for comparison purposes.

Table 4.4, Panel B, presents the year distribution of the sample. The highest number of samples that follow MAPR is in 2006, the first year of the MAPR regime, with 67 firm-year observations (making up 16% of the total sample observations). The second highest number of samples is in 2011, the second MAPR requirement year, with 48 firm-year observations (12% of the total sample observations). There are 46 firm-year observations (11% of the total sample observations) on the third rotation requirement in 2016.

Table 4.4, Panel C, presents the distribution of companies adopting MAPR for the sample used in this thesis. Almost half of the study's samples have two periods of MAPR, which is 203 firm-year observations from 102 listed companies (49% of the total sample observations). The 169 firm-year observations from 169 listed companies (40% of the total sample observations) have only one scheduled MAPR, and only 45 firm-year observations from 15 listed companies (11% of the total sample observations) have three MAPR.

4.3.2 Samples for MAPR preceding VAPR regimes

Since the MAPR was mandated in 2006, this thesis uses Thai listed companies' financial statements from 2006 to 2010 to observe the audit quality improvement as a consequence

of the first MAPR (FMAPR) under the MAPR regime. They are compared with the financial statements of the same companies from 2001 to 2005 identified as exercising the voluntary audit partner rotation (VAPR) under the VAPR regime period. A summary of the sample selection to test FMAPR is presented in Table 4.5.

Table 4.5: Sample data of listed companies under MAPR preceding VAPR regimes

Descriptions		Companies	Firm-year observations
Number of companies listed on the Stock Exchange of Thailand 2010		325	3,250
Less	Companies in financial entities segment	(42)	(420)
	Companies in property fund & REITs segment	(40)	(400)
	Preliminary sample	*243*	*2,430*
	Companies that are state-owned enterprises	(5)	(50)
	Sub-sample selection	*238*	*2,380*
	New companies yet to rotate a lead audit partner according to MAPR requirement [a]	(38)	(380)
	Companies with prior rotation according to MAPR requirement [b]	(109)	(1,090)
	Firm-year observations out of sequence with MAPR [c]		(728)
	Outlier firm-year observation [d]		(1)
	The study's sample [c]	**91**	**181**

[a] These newly-established listed companies are yet to rotate a lead audit partner over this study's investigation period. These companies were established after 2006.

[b] These listed companies had lead audit partner rotations prior to five consecutive years of their audits of financial statements from 2001 to 2010. That is, a lead audit partner of these companies had an audit period of less than five consecutive years.

[c] These listed companies are outside the MAPR period. These observations are in the second year to the fifth year of the same lead audit partner appointment. They are out of sequence with other companies in the sample and are not in the scope of this thesis.

[d] This listed company is Ticon Industrial Connection PCL, which is an outlier of the sample. Its extreme values might manipulate the results of this thesis so this company was eliminated from the sample.

Table 4.5 shows the number of listed companies used to observe FMAPR. As indicated, there were 3,250 firm-year observations from 325 listed companies at the calendar year end of 2010. Due to using special regulation requirements and different accounting

treatments, 420 firm-year observations (42 companies) in the financial sector and 400 firm-year observations (40 companies) in property funds, and real estate investment trusts (REITs) have been eliminated from this study's sample. This treatment is consistent with prior studies (Chi et al., 2009; Kwon et al., 2014). The process of elimination of these companies yielded 2,430 firm-year observations (243 companies) for the preliminary sample.

A further 50 firm-year observations of five companies are omitted because these listed companies are state-owned enterprises that are not required to rotate their lead audit partners. The final sub-sample total comprises 2,380 firm-year observations from 238 listed companies.

The next process is to identify the samples of VAPR and FMAPR. According to the MAPR requirement imposed in 2006, listed companies that had the same lead audit partner with a maximum of five consecutive years (before 2006) had to rotate their lead audit partner under the MAPR regime when that regime was introduced. In order to compare the audit quality of the same listed companies having FMAPR and VAPR under the VAPR regime, this thesis focuses only on listed companies that had the last preceding voluntary rotation of a lead audit partner in the five consecutive years before the first rotation under the MAPR regime when that regime was introduced.

The 380 firm-year observations (38 companies) are eliminated because these are newly-established listed companies yet to rotate their lead audit partners over the period under observation. The 1,090 firm-year observations from 109 listed companies are eliminated because they voluntarily rotated their lead audit partner prior to the five consecutive years. There are 728 firm-year observations which are outside the FMAPR period. These observations are in the second year to the fifth year of MAPR with the same lead audit partner. They are out of sequence with other companies in the sample and are not in the scope of this test. These companies are thus excluded.

Further, one firm-year observation in 2004 is deleted due to it being an outlier in the sample which could potentially bias the results of this study. The final sample for this study when it comes to testing the FMAPR thus consists of 181 firm-year observations of 91 listed companies, as reported in Appendix 3.

Table 4.6 presents the industry distribution of the sample under the MAPR and VAPR regimes in order to test FMAPR, following the SET classification.

Table 4.6: Industry group distributions of samples under MAPR and VAPR regimes

Industry group	Total	
	Firm-year observations	Percentage
Panel A: Industry distribution		
Agro & Food Industry	18	10%
Consumer Products	20	11%
Industrials	30	17%
Property & Construction	43	24%
Resources	8	4%
Services	46	25%
Technology	16	9%
Total sample	**181**	**100%**
Panel B: Year distribution		
2001	11	6%
2002	20	11%
2003	19	10%
2004	18	10%
2005	23	13%
2006	10	6%
2007	20	11%
2008	19	10%
2009	18	10%
2010	23	13%
Total	**181**	**100%**

As shown in Table 4.6, Panel A, the Services group is the major industry in this study with 46 firm-year observations (making up 25% of the total sample observations). The Property & Construction group is the second largest industry of the sample and has 43 firm-year observations (24% of the total sample observations). The smallest industry group of the sample is the Resource group that contains eight firm-year observations (4%

of the total sample observations). Major industry groups are consistent with the results in Section 4.3.1 and prior studies in the Thai setting (Phadungdet, 2014; Thapayom, 2012).

Table 4.6, Panel B, presents the year distribution samples under MAPR and VAPR for the same listed companies. The largest number in the sample appears in 2005, one year before MAPR was required, and in 2010 which is the FMAPR for these companies. It is possible that listed companies avoided being forced to rotate their lead audit partner under the new requirement by the regulator, and thus they voluntarily rotated their audit partner prior to the MAPR year.

Unlike in Chi et al.'s (2009) study, this thesis compares the audit quality of the same listed companies that experienced FMAPR subsequent to VAPR over the 10 year-period (the VAPR regime is from 2001 to 2005 and the MAPR regime is from 2006 to 2010). The results in this study therefore capture the immediate effect of MAPR on audit quality (the first year of mandatory rotation regime) relative to the last year of the voluntary regime and its effect on audit quality.

4.4 Summary and the conclusion

This chapter began with a discussion on audit quality measurement. Many prior studies in different settings use the quality of financial statements to investigate and measure audit quality as a consequence of MAPR (Chi et al., 2009; Kitiwong, 2014; Stakebrand, 2016). By following those studies, this thesis employs the level of DA to measure financial statements quality that can be used as a proxy of audit quality. This study does so in the Thai capital market. The level of DA in this study is calculated by the performance-matched DA model based on the study by Kothari et al. (2005).

There are three main hypotheses that are tested in this thesis as previously listed in Section 3.1, Section 3.2 and Section 3.3. The impact of audit firm and audit partner attributes on audit quality are also examined. Further, this thesis sheds light on the audit quality of the same listed companies that have both a first-time mandatory partner rotation under the

MAPR regime and a voluntary audit partner rotation under the VAPR regime. The models presented in this chapter are built to test H1 to H3.

This thesis carries out additional analyses in order to reaffirm the results. Unlike prior studies, this thesis includes the interaction variables in the established mode. These interactions are: the interaction of MAPR and audit firm size, and the interaction of MAPR and listed companies' size. In addition, the effect of the rotation of a lead audit partner and the change of the audit firm on audit quality are tested in this thesis. Further, sensitivity tests are conducted in this thesis by employing other audit quality measurements, such as the signs of DA (DA+/DA–), the level of CA, MAO, GCO and AWCA, as robustness tests of the effectiveness of MAPR on audit quality.

In order to test the hypotheses in this thesis, samples are categorised into two groups. The first sample is comprised of companies with the maximum number of three MAPRs to provide evidence of the impact of multiple MAPRs on audit quality. These companies had MAPR applied in the Thai capital market between the years from 2006 to 2017. The second sample comprises the same listed companies that experienced both the MAPR and VAPR regimes from 2001 to 2010. This sample is used to examine the immediate effect of MAPR in its first year of MAPR adoption (FMAPR) compared to audit quality in the last year of VAPR.

The next chapter provides descriptive statistics, the results of the analyses and a discussion of the results.

Chapter 5 Analysis of results and discussion

This chapter provides a discussion of descriptive statistics and results of the analyses, undertaken on the relationship between mandatory audit partner rotation (MAPR) and audit quality in the Thai capital market. The chapter begins with Section 5.1 by presenting the descriptive statistics and correlation results, then Section 5.2 reports and discusses the main results of this thesis. This section also discusses the possible reasons for the main findings and highlights the effects of multiple numbers of MAPRs on audit quality. This is followed by Section 5.3 which discusses the regression results of the effects of audit firm and audit partner attributes on audit quality. Then, Section 5.4 presents results of the tests of the effects of first mandatory audit partner rotation (FMAPR) following previous voluntary audit partner rotation (VAPR). The additional analyses and sensitivity tests are presented in Section 5.5. Finally, Section 5.6 gives a summary and conclusion for this chapter.

5.1 Descriptive statistics

There are two sub-sections that present descriptive statistics for the different sample groups used in this thesis. The descriptive statistics on samples of listed companies of the MAPR regime are reported in Section 5.1.1. Then, Section 5.1.2 discusses descriptive statistics on samples under both the MAPR and VAPR regimes.

In order to mitigate the potential influence of extreme values, this thesis winsorises five percentage points at the top and bottom of discretionary accruals (DA), listed companies' age (AGE), listed companies' size (SIZE), industries' growth (INDGROW), cash flow from operating activities (CFO), net loss (LOSS) and listed companies' leverages (LEV). This process is consistent with the studies by Chi et al. (2009) and Myers et al. (2003). SPSS 25 was used for all the analyses in this thesis.

5.1.1 Samples of Thai listed companies under the MAPR regime

Table 5.1 shows the descriptive statistics for different numbers of MAPRs for 417 firm-year observations (286 companies) over the period from 2006 to 2017 in the Thai capital market.

Table 5.1: Descriptive statistics of MAPR analysis

Variables	Descriptions	Measurement	Unit	Mean	Min.	Max.	SD	N
DA	Discretionary accruals	Performance-match modified Jones' model	Unit	-0.0025	-0.1657	0.1701	0.0809	417
CA	Current accruals	Current accruals based on Myer et al. (2003)	Unit	0.0190	-0.1324	0.1925	0.0801	417
MAO	Modified audit opinion	Modified audit opinion from auditor's report	Dichotomous	0.0504	0.0000	1.0000	0.2189	21
GCO	Going-concern opinion	Going-concern opinion from auditor's report	Dichotomous	0.0360	0.0000	1.0000	0.1864	15
1 MAPR	One period of MAPR	MAPR time	Dichotomous	0.4053	0.0000	1.0000	0.4915	169
2 MAPR	Two periods of MAPR	MAPR times	Dichotomous	0.4868	0.0000	1.0000	0.5004	203
3 MAPR	Three periods of MAPR	MAPR times	Dichotomous	0.1079	0.0000	1.0000	0.3106	45
Big4	Audit firm size	Auditor of listed companies is one of the Big 4	Dichotomous	0.6475	0.0000	1.0000	0.4783	270
AFSPEC	Audit firm industry specialists	The top two audit firms' market share (Chi & Chin, 2011)	Dichotomous	0.4748	0.0000	1.0000	0.5000	198
APSPEC	Audit partner industry specialists	The top two of an individual lead audit partner's market share (Chi & Chin, 2011)	Dichotomous	0.0887	0.0000	1.0000	0.2847	37
BUSY	Audit partner's busyness	The natural logarithm of the number of listed clients in an audit partner's client portfolio in a year	Number of clients	1.3869	0.0000	2.8904	0.6996	417
1MAPR*BIG4	Interaction of MAPR and BIG4	Interaction MAPR* BIG4	Unit	-0.1471	-1.6378	1.1161	1.0055	417
2MAPR* BIG4	Interaction of MAPR and BIG4	Interaction MAPR* BIG4	Unit	0.0958	-1.3882	1.3168	0.9926	417
3MAPR* BIG4	Interaction of MAPR and BIG4	Interaction MAPR* BIG4	Unit	0.0785	-3.8873	2.1164	0.9322	417

Table 5.1: Descriptive statistics of MAPR analysis (continued)

Variables	Descriptions	Measurement	Unit	Mean	Min.	Max.	SD	N
1MAPR*SIZE	Interaction of MAPR and SIZE	Interaction MAPR*SIZE	Unit	-0.1728	-1.8125	2.3740	0.9760	417
2MAPR*SIZE	Interaction of MAPR and SIZE	Interaction MAPR*SIZE	Unit	0.1553	-1.9087	2.0121	0.9888	417
3MAPR*SIZE	Interaction of MAPR and SIZE	Interaction MAPR*SIZE	Unit	0.0231	-4.3018	5.6346	0.9036	417
AGE	Company age	Number of years since the company was listed on the SET	Years	18.8417	7.0000	35.0000	7.5825	417
SIZE	Company size	The natural logarithm of total assets of the listed company	USD	11.9644	9.8901	14.6815	1.3848	417
INDGROW	Industry growth	Industry group's total sales of current year/Industry group's total sales of last year	USD	1.0768	0.8781	1.2680	0.0932	417
CFO	Cash flow from the operating activities	Net cash flows from operations/Beginning total assets	USD	0.0848	-0.1284	0.2712	0.1009	417
LOSS	Net income of the company	Company has a loss during the financial period	Dichotomous	0.1439	0.0000	1.0000	0.3514	60
LEV	Leverages	(Total liabilities – Cash)/Total assets	USD	0.4169	0.0895	0.7475	0.2005	417

As can be seen in Table 5.1, the mean value of DA for MAPR equals -0.0025, which is smaller than prior studies in the Thai context. For example, the mean for DA in the Phadungdet (2014) study equals 0.1077. This is because of the uniqueness of the sample in this thesis in focusing on MAPR companies, whereas previous studies investigated only the top 100 listed companies in the Stock Exchange of Thailand. Therefore, the sample in this study covers a wider range of companies with a wider range of assets and other attributes. The management at their discretion managed accruals depending on the circumstances which lead to results for the DA mean fluctuating downward and upward, also resulting in the mean below zero.

The mean value of CA equals 0.0190. Since there is a limited number of studies using CA as a proxy of audit quality in the Thai setting, this study compares the results of those alternative measures of audit quality with prior international studies (Chi et al., 2009; Myers et al., 2003). The study by Myers et al. (2003) in the U.S. capital market, found that the mean value of CA is approximately 0.1880. However, the difference in the mean value of CA is possibly due to the different characteristics of the market and listed companies' size (Leuz et al., 2003; Myers et al., 2003). The mean value of the modified audit opinion (MAO) in this thesis equals 0.0504; that is, five percent (21 firm-year observations) of the listed companies with MAPR received MAO. The mean value of a going-concern opinion (GCO) equals 0.0360, which is around four percent (15 firm-year observations) of listed companies having MAPR received for a GCO.

A total of 40 percent (169 firm-year observations) of this study's sample have one period of MAPR, 49 percent (203 firm-year observations) have two periods of MAPR, and 11 percent (45 firm-year observations) have three periods of MAPR. There are fewer listed companies that have three complete periods of MAPR in this observation period. Since there is a lack of studies that have investigated the lengthy periods of MAPR in both the Thai market and international settings, this thesis contributes to the literature about MAPR by using a longer period of time than other prior studies and observes the effects of three MAPRs.

A total of 65 percent of the study's sample is audited by Big 4 audit firms, and 35 percent of the sample is audited by non-Big 4 audit firms. In contrast with prior studies in the same Thai market, the Big 4 audit firms seem to not have a predominant number of clients. For example, 90 percent of the sample in the Phadungdet (2014) study and 80 percent of the sample in the Thapayom (2012) study are audited by Big 4 audit firms. This is due to the focus of prior studies being the top 100 larger-sized Thai listed companies primarily audited by Big 4 audit firms, as discussed in Chapter 3, Section 3.2.

The mean value of the audit firm industry specialists (AFSPEC) is 0.4748. This means that a total of 47 (198 firm-year observations) of the sample is audited by AFSPEC and 53 percent (219 firm-year observations) of observations are audited by non-AFSPEC. The AFSPEC is measured by the top two audit firms' market share for each year based on the study by Chi and Chin (2011) in the Taiwanese market and the study by Arthur et al. (2017) in the U.S. market. The mean value of AFSPEC in a prior study equalled 0.4630 (Chi & Chin, 2011) and 0.1180 (Arthur et al., 2017), respectively. This means that in this study, AFSPEC are less dominant in providing services to companies.

The mean value of the audit partner industry specialists (APSPEC) in this thesis measured by the top two audit partners' market share for each year based on the study by Chi and Chin (2011), and Zerni (2012), equals 0.0887. This means that around nine percent (37 firm-year observations) of this study's sample is audited by APSPEC. Therefore, APSPEC is not a major supplier of audit services to the Thai audit market. The mean value of audit partner busyness (BUSY) as measured by the number of listed clients in an audit partner's client portfolio in a year equals 1.3869. This mean value of BUSY is smaller than the values in the Australian market, being 1.5320 (Goodwin & Wu, 2016), and in the Chinese market, being 1.9490 (Gul et al., 2017). This is possibly because the number of listed companies in the Thai capital market is smaller than those two markets. This shows that, on average, the number of clients per an audit partner in Thailand is lower than in those of the larger markets.

The mean value of the interaction of MAPR*BIG4 for 1 MAPR, 2 MAPR, and 3 MAPR equals -0.1471, 0.0958, and 0.0785, respectively. The interaction of MAPR*BIG4 is

calculated by using standardised scores of MAPR multiplied by the standardised scores of BIG4 for the listed companies. The mean value of interaction of MAPR*SIZE for 1 MAPR, 2 MAPR and 3 MAPR equals -0.1728, 0.1553, and 0.0231, respectively. The interaction of MAPR*SIZE is calculated by using standardised scores of MAPR multiplied by the standardised scores of SIZE that are measured by the natural logarithm of the total assets of the listed companies. A few prior studies include the interactions of variables as impacting factors, however their descriptive statistics do not disclose the relevant values (Chi & Huang, 2005; Lee, 2015). Hence it is difficult to make further comparisons.

The mean value of AGE as a measurement from the date of the company's listing to the last year of observation equals 18 years and 10 months, which is similar to the prior study by Phadungdet (2014) in the Thai market for the period from 2009 to 2013. The mean value of SIZE as measured by a natural logarithm of listed companies' total assets is 11.9644. This is smaller than the same measurement found by Phadungdet (2014) and Thapayom (2012), where the mean company size is 17.9870 and 23.7263, respectively. The different mean value of SIZE is due to the different focus of this study compared to those prior studies; that is, prior studies examined the top 100 listed companies on Thailand's SET, which includes only the larger-sized companies, whereas this study observes all the companies in the Thai market.

The mean value of INDGROW is 1.0768. INDGROW in this study is calculated by the industry group's total sales of the current year divided by the industry group's total sales of the previous year. INDGROW was not included as a variable in previous studies in the Thai capital market. However, this study follows other prior studies in including industry growth (Arthur et al., 2017; Chi et al., 2009). The study in the Taiwanese market by Chi et al. (2009) and the study in the Australian market by Arthur et al. (2017) used a small mean of INDGROW of 1.0410 and 0.3070, respectively, as compared to this study. Different characteristics of the capital markets, economic regimes and the different observation periods contribute to a different growth rate for each industry in this thesis compared to other contexts.

The average for CFO as a measure of the cash inflows and outflows from companies' main business activities, is eight percent of total assets. This means that the total assets of listed companies in Thailand can generate cash at about eight percent, on average. CFO is not included as an influencing factor on audit quality for MAPR in prior studies in Thai setting. However, the CFO is included in prior studies in other Asian countries. This thesis thus follows these studies in the Asian region by including the CFO variable. The studies in the Taiwanese market by Chi et al. (2009) and Chi et al. (2017), found the mean CFO is less than one percent (0.70% and 0.04%, respectively) of total assets. The different mean for CFO is due to the different time period studied here compared to those prior studies and the different characteristics of the market and economic regimes, such as the capital market's size and listed companies' size (Leuz et al., 2003).

Unlike prior studies in Thailand, this study includes companies' net losses as a factor influencing audit quality. This thesis follows the study by Kwon et al. (2014) in the Korean market. The results show that, on average, 14 percent of total firm-year observations have a net loss. The 29 percent of the sample in Kwon et al.'s (2014) study in the Korean market, has a net loss. The differences in the average number of companies having a net loss is also due to the different economic environments, such as the capital market growth (Leuz et al., 2003) and the differences in this study's longer observation period.

The mean of leverage, which is measured by total liabilities minus cash divided by total assets, equals 42 percent of total assets. This variable has not been investigated in prior studies in the Thai market but has been observed in other countries. A study by Siregar et al. (2012) investigated MAPR in the Indonesian market, for example, and found the mean leverage is 78 percent of total assets. Similarly, the study by Kwon et al. (2014) carried out in the Korean market and Chi et al. (2017) in the Taiwanese market found that the mean leverage equals 40 percent of total assets. This means listed companies in Thailand have similar leverage to listed companies in the Korean and Taiwanese capital markets and are not as heavily indebted as the Indonesian companies.

The correlations matrix for DA analysis of all variables of the sample used in this study is shown in Tables 5.2 and 5.3. Table 5.2 presents the Pearson's correlations analysis. It is found that the correlation coefficients between the DA and CFO are negative and significant (r = -0.7060, p-value < 0.01), which is similar to the study by Pornupatham (2006). This is because the measure of DA is directly calculated from the statement of cash flows (Hribar & Collins, 2002). There is thus a high correlation between these two variables. Among the independent variables, the highest correlation is between 1MAPR*SIZE and 2MAPR*SIZE, which is negative and significant (r = -0.8350, p-value < 0.01). The Spearman's rho correlations analysis is presented in Table 5.3. The results of the Spearman's rho correlations matrix indicate the same significant correlation coefficients as the Pearson's correlations analysis. This is because there is some degree of correlation for explanatory variables, and the multivariate analyses are more appropriate than the bivariate correlations analysis.

Table 5.2: Pearson's correlations matrix for DA analysis

Variable	DA	1 MAPR	2 MAPR	3 MAPR	BIG4	AFSPEC	APSPEC	BUSY	1 MAPR *BIG4	2 MAPR *BIG4
DA	1.0000									
1 MAPR	-0.0541	1.0000								
2 MAPR	0.0073	**-0.8040 ****	1.0000							
3 MAPR	0.0739	**-0.2870 ****	**-0.3390 ****	1.0000						
BIG4	-0.0122	**-0.1470 ****	0.0960	0.0787	1.0000					
AFSPEC	-0.0072	-0.0904	0.1020	-0.0212	**0.6810 ****	1.0000				
APSPEC	0.0046	-0.0515	0.0504	0.0002	**0.2130 ****	**0.3110 ****	1.0000			
BUSY	-0.0470	**0.0326 ***	-0.0080	-0.0387	0.0771	**0.2600 ****	**0.1110 ***	1.0000		
1 MAPR*BIG4	0.0030	-0.0565	0.0639	-0.0136	0.0904	0.0692	0.0225	-0.0028	1.0000	
2 MAPR*BIG4	0.0220	0.0648	0.0051	**-0.1110 ***	-0.0597	0.0035	0.0246	0.0248	**-0.8290 ****	1.0000
3 MAPR*BIG4	-0.0430	-0.0146	**-0.1180 ***	**0.2130 ****	-0.0520	**-0.1240 ***	-0.0805	-0.0377	**-0.2840 ****	**-0.3000 ****
1 MAPR*SIZE	0.0281	-0.0684	0.0411	0.0420	0.0214	-0.0378	-0.0742	**-0.0970 ***	**0.3800 ****	**-0.3460 ****
2 MAPR*SIZE	0.0203	**0.0405 ***	0.0083	-0.0775	0.0218	0.0396	0.0911	0.0451	**-0.3310 ****	**0.3840 ****
3 MAPR*SIZE	-0.0837	**0.0454 ***	-0.0848	0.0648	-0.0750	-0.0052	-0.0339	0.0869	-0.0661	-0.0848
AGE	0.0532	**-0.3120 ****	**0.1470 ****	**0.2560 ****	0.0535	0.0402 **	0.0678	-0.0956	0.0714	-0.0351
SIZE	**0.1370 ****	**-0.1730 ****	**0.1560 ****	0.0232	**0.3910 ****	**0.2910**	**0.3450 ****	-0.0282	0.0208	0.0217
INDGROW	-0.0016	**-0.1010 ***	**0.0970 ***	0.0031	0.0002	0.0076	-0.0069	0.0040	0.0408	-0.0651
CFO	**-0.7060 ****	0.0190	0.0533	**-0.1160 ***	0.0686	0.0261	0.0397	0.0557	-0.0305	0.0620
LOSS	-0.0127	**0.0095 ***	0.0108	-0.0325	**-0.0980 ***	-0.0751 **	-0.0558	-0.0295	**0.1350 ****	**-0.1570 ****
LEV	**0.1390 ****	**-0.0079 ****	0.0164	-0.0139	**0.1590 ****	**0.1610 ****	**0.1160 ***	0.0907	-0.0704	0.0593

* Correlation is significant at the 0.05 level (two-tailed).
** Correlation is significant at the 0.01 level (two-tailed).

Table 5.2: Pearson's correlations matrix for DA analysis (continued)

Variable	3 MAPR *BIG4	1 MAPR *SIZE	2 MAPR *SIZE	3 MAPR *SIZE	AGE	SIZE	IND GROW	CFO	LOSS	LEV
DA										
1 MAPR										
2 MAPR										
3 MAPR										
BIG4										
AFSPEC										
APSPEC										
BUSY										
1 MAPR*BIG4										
2 MAPR*BIG4										
3 MAPR*BIG4	1.0000									
1 MAPR*SIZE	-0.0548	1.0000								
2 MAPR*SIZE	-0.0934	**-0.8350 ****	1.0000							
3 MAPR*SIZE	**0.2580 ****	**-0.2380 ****	**-0.3370 ****	1.0000						
AGE	-0.0616	**-0.1030 ***	0.0790	0.0366	1.0000					
SIZE	-0.0727	-0.0404	0.0841	-0.0792	0.0852	1.0000				
INDGROW	0.0420	0.0167	0.0118	-0.0493	**-0.1190 ***	-0.0005	1.0000			
CFO	-0.0544	0.0237	-0.0160	-0.0123	-0.0526	-0.0412	-0.0719	1.0000		
LOSS	0.0396	0.0136	-0.0230	0.0173	0.0293	**-0.1990 ****	0.0332	**-0.3240 ****	1.0000	
LEV	0.0185	0.0187	0.0199	-0.0670	**-0.1760 ****	**0.3540 ****	**0.0990 ***	**-0.2970 ****	0.0703	1.0000

* Correlation is significant at the 0.05 level (two-tailed).
** Correlation is significant at the 0.01 level (two-tailed).

Table 5.3: Spearman's rho correlations matrix for DA analysis

Variable	DA	1 MAPR	2 MAPR	3 MAPR	BIG4	AFSPEC	APSPEC	BUSY	1 MAPR *BIG4	2 MAPR *BIG4
DA	1.0000									
1 MAPR	-0.0599	1.0000								
2 MAPR	0.0074	**-0.8040 ****	1.0000							
3 MAPR	0.0828	**-0.2870 ****	**-0.3390 ****	1.0000						
BIG4	-0.0234	**-0.1470 ****	0.0960	0.0787	1.0000					
AFSPEC	-0.0177	-0.0904	**0.1020 ***	-0.0212	**0.6810 ****	1.0000				
APSPEC	0.0102	-0.0515	0.0504	0.0002	**0.2130 ****	**0.3110 ****	1.0000			
BUSY	-0.0467	0.0493	-0.0256	-0.0367	0.0609	**0.2480 ****	**0.1030 ***	1.0000		
1 MAPR*BIG4	0.0365	**-0.1850 ****	**0.1690 ****	0.0199	0.0059	0.0100	0.0074	-0.0124	1.0000	
2 MAPR*BIG4	0.0084	**0.1900 ****	**-0.1470 ****	-0.0644	**-0.1350 ****	-0.0539	0.0036	0.0268	**-0.8330 ****	1.0000
3 MAPR*BIG4	-0.0147	0.0151	**-0.2070 ****	**0.3100 ****	**-0.5770 ****	**-0.4750 ****	**-0.1780 ****	-0.0775	**-0.2050 ****	**-0.1450 ****
1 MAPR*SIZE	0.0206	**-0.1130 ***	0.0794	0.0504	0.0018	-0.0536	**-0.1040 ***	-0.0858	**0.3820 ****	**-0.3480 ****
2 MAPR*SIZE	0.0025	0.0653	-0.0143	-0.0802	0.0164	0.0344	0.0835	0.0503	**-0.3360 ****	**0.3770 ****
3 MAPR*SIZE	**-0.1130 ***	**0.1170 ***	**-0.1850 ****	**0.1120 ***	**-0.3000 ****	**-0.1980 ****	**-0.2110 ****	0.0555	-0.0403	-0.0333
AGE	0.0568	**-0.3150 ****	**0.1610 ****	**0.2390 ****	0.0399	0.0289	0.0495	**-0.0970 ***	**0.1240 ***	-0.0835
SIZE	**0.1360 ****	**-0.1750 ****	**0.1490 ****	0.0372	**0.3950 ****	**0.2860 ****	**0.3150 ****	-0.0226	0.0022	-0.0265
INDGROW	0.0129	-0.0959	0.0930	0.0021	0.0010	-0.0025	-0.0059	0.0069	0.0567	-0.0771
CFO	**-0.6840 ****	0.0264	0.0485	**-0.1200 ***	0.0721	0.0243	0.0152	0.0533	-0.0597	0.0594
LOSS	0.0003	0.0095	0.0108	-0.0325	**-0.0980 ***	-0.0751	-0.0558	-0.0292	**0.1420 ****	**-0.1500 ****
LEV	**0.1270 ****	-0.0075	0.0135	-0.0097	**0.1630 ****	**0.1620 ****	**0.1180 ***	0.0881	-0.0849	0.0444

* Correlation is significant at the 0.05 level (two-tailed).
** Correlation is significant at the 0.01 level (two-tailed).

Table 5.3: Spearman's rho correlations matrix for DA analysis (continued)

Variable	3 MAPR *BIG	1 MAPR *SIZE	2 MAPR *SIZE	3 MAPR *SIZE	AGE	SIZE	IND GROW	CFO	LOSS	LEV
DA										
1 MAPR										
2 MAPR										
3 MAPR										
Big4										
AFSPEC										
APSPEC										
BUSY										
1 MAPR*BIG4										
2 MAPR*BIG4										
3 MAPR*BIG4	1.0000									
1 MAPR*SIZE	-0.0263	1.0000								
2 MAPR*SIZE	-0.0951	**-0.8280 ****	1.0000							
3 MAPR*SIZE	**0.3630 ****	**-0.1260 ****	**-0.2640 ****	1.0000						
AGE	-0.0076	-0.0656	0.0612	-0.0097	1.0000					
SIZE	**-0.2610 ****	-0.0705	0.0383	**-0.6710 ****	0.0672	1.0000				
INDGROW	0.0274	0.0368	0.0045	-0.0431	**-0.1280 ****	0.0150	1.0000			
CFO	-0.0933	0.0394	-0.0265	0.0035	-0.0862	-0.0578	-0.0596	1.0000		
LOSS	0.0778	0.0263	-0.0159	**0.1230 ***	0.0392	**-0.2040 ****	0.0265	**-0.3290 ****	1.0000	
LEV	-0.0763	-0.0017	0.0202	**-0.3000 ****	**-0.1630 ****	**0.3590 ****	**0.1050 ***	**-0.2890 ****	0.0714	1.0000

* Correlation is significant at the 0.05 level (two-tailed).
** Correlation is significant at the 0.01 level (two-tailed).

The high values of correlation among variables as presented in Table 5.2 and Table 5.3 indicate multicollinearity problems that could reduce the explanatory power of the models used in this study (Chayasombat, 2010; Pornupatham, 2006). In light of this, tests for detecting multicollinearity are performed with variance inflation factors (VIF) analysis.

Table 5.4 presents the results of the tests for multicollinearity with the VIF of the main model of this thesis. The VIF varies from 1.0252 to 1.4397 for the model that uses the level of DA as the audit quality measure. According to Kennedy (2008), a VIF of over 10 indicates a problem of multicollinearity. The results of the VIF for all the models that used the level of DA as an audit quality measurement are presented in Appendix 4. However, the VIF in all models used in this thesis is less than 10, and thus indicates no issues with multicollinearity.

Table 5.4: Test for multicollinearity – Variance Inflation Factors (VIF)

Variables	Description	1 MAPR	2 MAPR	3 MAPR
Test variables				
1 MAPR	MAPR time	1.1685		
2 MAPR	MAPR times		1.0701	
3 MAPR	MAPR times			1.0986
BIG4	Audit firm size	1.2055	1.1978	1.2053
AFSPEC	Audit firm industry specialist	2.1391	2.1450	2.1653
APSPEC	Audit partner industry specialist	1.2236	1.2238	1.2228
BUSY	Audit partner busyness	1.1292	1.1293	1.1294
Control variables				
AGE	Listed company's age	1.2068	1.1162	1.1636
SIZE	Listed company's size	1.4318	1.4397	1.4192
INDGROW	Industry growth	1.0470	1.0399	1.0252
CFO	Cash flow from the operating activities	1.2499	1.2593	1.2706
LOSS	Net income of the listed company	1.1834	1.1879	1.1917
LEV	Listed company's leverages	1.3558	1.3558	1.3558

5.1.2 Samples of Thai listed companies under MAPR and VAPR regimes

Table 5.5 shows the descriptive statistics for the same listed companies having both FMAPR and VAPR for 181 firm-year observations (92 companies) over the period 2001 to 2010 in the Thai capital market. This sample is used to examine audit quality as a consequence of the first mandatory audit partner rotation (FMAPR) following the introduction of MAPR in the Thai market relative to the last preceding voluntary rotation (VAPR) for the same listed companies. These descriptive statistics are for this sample, and are different from the main sample in this thesis as discussed in Section 5.1.1.

As shown in Table 5.5, the mean value of DA equals -0.0181, which is smaller than in Section 5.1.1 and for prior studies in the Thai context (Phadungdet, 2014) due to different observation periods and the types of samples. Further, listed companies' size and the economic environment of the sample possibly affect the mean value of DA in this thesis.

A total of 50 percent of the sample relates to FMAPR while the remaining half of the total sample relates to VAPR. This sample is used for further observations to investigate audit quality of the same listed companies having FMAPR and compared to their VAPR. Further, fifty-six percent of the total sample is audited by Big 4 audit firms, while non-Big 4 audit firms provide audit services for 44 percent of the total sample. These results are consistent with the results given in Section 5.1.1 indicating that the audit market is not dominated by Big 4 audit firms. The average company age equals 15 years and 3 months, which is similar to that found by Thapayom (2012) in the same setting. The mean value of SIZE, measured as a natural logarithm of the total assets, is 11.3521, which is similar to the results in Section 5.1.1. The mean value of INDGROW, measured by industry group's total sales for the current year divided by industry group's total sales for the last year, equals 1.1387. The mean value of the CFO is 11 percent of total assets, which means samples can generate cash at about 11 percent, on average. A total of 13 percent of the sample observations have a net loss and the mean value of LEV is 43 percent of total assets. These results show no significant differences to those detailed here in Section 5.1.1.

Table 5.5: Descriptive statistics of MAPR and VAPR regimes

Variables	Descriptions	Measurement	Unit	Mean	Min.	Max.	SD	N
DA	Discretionary accruals	Performance-match modified Jones model	Unit	-0.0181	-0.2262	0.1360	0.0874	181
FMAPR	The first time of MAPR	The first adoption of MAPR	Dichotomous	0.5028	0.0000	1.0000	0.5014	91
Big4	Audit firm size	Auditor of listed companies is one of the Big 4	Dichotomous	0.5580	0.0000	1.0000	0.4980	101
AGE	Company age	Number of years since the company was listed on the SET	Years	15.2707	4.0000	30.0000	6.2386	181
SIZE	Company size	The natural logarithm of total assets of the listed company	USD	11.3521	9.3515	13.7049	1.2409	181
INDGROW	Industry growth	Industry group's total sales of current year/Industry group's total sales of last year	USD	1.1387	0.9184	1.5244	0.1501	181
CFO	Cash flow from the operating activities	Net cash flows from operations/Beginning total assets	USD	0.1112	-0.0892	0.3030	0.0993	181
LOSS	Net income of the company	Company has a loss during the financial period	Dichotomous	0.1271	0.0000	1.0000	0.3340	23
LEV	Leverages	(Total liabilities – Cash)/Total assets	USD	0.4309	0.0973	0.9494	0.2326	181

Table 5.6 presents the correlation analysis among all variables of the sample used in this study. Table 5.6, Panel A, reports the Pearson's correlations analysis. Similar to Section 5.1.1, the correlation coefficient between DA and CFO is the highest correlation that is negative and significant (r = -0.5530, p-value < 0.01). This is because DA is directly calculated from CFO (Hribar & Collins, 2002). Table 5.6, Panel B, presents Spearman's rho correlations analysis, which is similar to the results of the Pearson's correlations analysis. The DA has the highest correlation coefficients to CFO, which are negative and significant (r = -0.5450, p-value < 0.01).

The correlations matrix in Table 5.6 does not indicate a multicollinearity problem. Moreover, measured by the VIF, the results confirm that there is no sign of a multicollinearity problem as presented in Table 5.7.

Table 5.6: Correlations matrix for DA analysis of MAPR and VAPR regimes

Variable	DA	FMAPR	Big4	AGE	SIZE	IND GROW	CFO	LOSS	LEV
Panel 1: Pearson's correlations matrix for DA analysis									
DA	1.0000								
FMAPR	-0.0230	1.0000							
Big4	0.0259	-0.0173	1.0000						
AGE	0.1285	**0.3680 ****	-0.0364	1.0000					
SIZE	0.1229	**0.1970 ****	**0.3820 ****	0.1185	1.0000				
INDGROW	-0.0370	**-0.3180 ****	0.0331	**-0.1920 ****	-0.0634	1.0000			
CFO	**-0.5530 ****	0.1430	0.0804	0.0317	0.0189	-0.0940	1.0000		
LOSS	-0.0073	-0.0519	-0.0279	**-0.1470 ***	-0.1458	0.0178	**-0.3770 ****	1.0000	
LEV	0.0074	**-0.2040 ****	-0.0128	**-0.1580 ***	**0.1840 ***	0.0820	**-0.3360 ****	**0.2940 ****	1.0000
Panel 2: Spearman's rho correlations matrix for DA analysis									
DA	1.0000								
FMAPR	0.0055	1.0000							
Big4	0.0298	-0.0173	1.0000						
AGE	**0.1470 ***	**0.4340 ****	-0.0738	1.0000					
SIZE	0.1420	**0.1890 ***	**0.3760 ****	0.0994	1.0000				
INDGROW	-0.0652	**-0.4320 ****	0.0481	**-0.3060 ****	-0.0383	1.0000			
CFO	**-0.5450 ****	0.1311	0.0754	0.0415	-0.0070	-0.0872	1.0000		
LOSS	0.0292	-0.0519	-0.0279	-0.1312	**-0.1500 ***	0.0129	**-0.3880 ***	1.0000	
LEV	0.0088	**-0.1840 ***	-0.0013	-0.1269	**0.2170 ****	0.1070	**-0.3190 ****	**0.2040 ****	1.0000

* Correlation is significant at the 0.05 level (two-tailed).
** Correlation is significant at the 0.01 level (two-tailed).

Table 5.7: Test for multicollinearity – Variance Inflation Factors (VIF)

Variables	Description	FMAPR
Test variables		
FMAPR	The first adoption of MAPR	1.3665
BIG4	Audit firm size	1.2210
Control variables		
AGE	Listed company's age	1.2101
SIZE	Listed company's size	1.4035
INDGROW	Industry growth	1.1268
CFO	Cash flow from the operating activities	1.2810
LOSS	Net income of the listed company	1.3008
LEV	Listed company's leverages	1.3394

The next section, Section 5.2, discusses the main regression results of this thesis.

5.2 Main results of the impact of MAPR on audit quality

The analysis in this thesis is done with the aim of evaluating the effectiveness of MAPR on audit quality in a developing market, Thailand. As mentioned previously, this thesis includes the maximum completed three periods of MAPR.

Overall, there are five main results in this thesis. First, MAPR does not significantly improve audit quality when measured by the level of DA in the Thai market. Second, the results of this study show that the relationship between MAPR and audit quality is weak. The results of the regression analyses and the related discussion of these two main findings are reported in Table 5.8, Section 5.2.1. Further, results of the regression analysis show that only listed companies with 3 MAPRs when audited by Big 4 audit firms have a higher audit quality than those companies audited by non-Big 4 audit firms. This is shown in Table 5.12, Section 5.5.1.1. In addition, only larger listed companies with 3 MAPRs have a higher audit quality. This is reported in Table 5.13, Section 5.5.1.2. The

results here also find that only listed companies with 3 MAPRs, which have positive DA, are associated with higher audit quality. These findings are presented in Table 5.14, Section 5.5.2.1. The detailed discussion of these results is presented in Sections 5.2.1 to 5.5.2.4.

5.2.1 Results of the impact of MAPR on audit quality

The results presented in Table 5.8 show that the coefficient of listed companies having only one period of MAPR is negative and insignificant (coefficient = -0.0057, t-stat = -1.0018) as shown in the first column, “1 MAPR”. In addition, the coefficient of listed companies having three periods of MAPR is negative and insignificant (coefficient = -0.0083, t-stat = -0.9507) in the third column, “3 MAPR”. However, the coefficient of listed companies having two periods of MAPR is positive and insignificant (coefficient = 0.0082, t-stat = 1.5266) in the second column, “2 MAPR”. Overall, these main results of the regression analysis find that MAPR does not significantly increase audit quality and the relationship is weak.

Table 5.8: Full results of effect of MAPR on audit quality measured by performance-matched modified DA

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	1 MAPR Coefficient (t-statistic)		2 MAPR Coefficient (t-statistic)		3 MAPR Coefficient (t-statistic)	
Test variables – the number of MAPR							
1 MAPR	-	-0.0057					
		(-1.0018)					
2 MAPR	-			0.0082			
				(1.5266)			
3 MAPR	-					-0.0083	
						(-0.9507)	
Control variables							
BIG4	-	-0.0001		0.0001		0.0009	
		(-0.0203)		(0.0216)		(0.1443)	
AGE	-	-0.0003		-0.0003		-0.0001	
		(-0.7973)		(-0.7323)		(-0.2624)	
SIZE	+	0.0054	**	0.0052	**	0.0055	**
		(2.4031)		(2.3093)		(2.4730)	
INDGROW	+	-0.0411		-0.0422		-0.0362	
		(-1.4442)		(-1.4898)		(-1.2849)	
CFO	-	-0.6597	***	-0.6633	***	-0.6630	***
		(-22.9424)		(-23.0177)		(-22.8650)	
LOSS	-	-0.0574	***	-0.0581	***	-0.0579	***
		(-7.1464)		(-7.2284)		(-7.1892)	
LEV	+	-0.0484	***	-0.0484	***	-0.0485	***
		(-3.2134)		(-3.2176)		(-3.2173)	
Intercept		0.0698	*	0.0667	*	0.0574	
		(1.6693)		(1.6514)		(1.4353)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.572		0.573		0.572	
F-value		70.517	***	70.911	***	70.487	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

As shown in Table 5.8, the model used in this study is significant (F-statistics = 70.487 – 70.911). The overall adjusted R^2 of this section equals 0.572 – 0.573, which is higher than that reported in the studies by Phadungdet (2014), and Thapayom (2012), who conducted observations of audit quality as a consequence of audit partner rotation in the same setting. This model used in this study also has a higher adjusted R^2 than prior studies in similar areas within different settings, such as the Indonesian market in the study by Siregar et al. (2012), who observed the association of audit quality and audit partner rotation. Their

study's model adjusted R^2 is 0.080. Also, the adjusted R^2 of the study by Chen et al. (2008), who observed audit quality measuring DA after an audit partner rotation in the Taiwanese market, equals 0.454. The model used in this thesis thus has a better goodness-of-fit to the audit quality model than the model used by these previous studies. The fixed effects of both year and industry that are included in the regressions are also considered in this study's model.

By investigating all listed companies following the MAPR requirement over 12-year periods, this thesis provides more evidence into the maximum three periods of MAPR in a developing market, Thailand. This thesis adds to the knowledge of audit quality literature as a consequence of MAPR. Even though a new audit partner following MAPR is expected to enhance auditor independence and possibly lead to greater audit quality (Bandyopadhyay et al., 2014; Fargher et al., 2008; Healey & Kim, 2003; Laurion et al., 2017; Lennox et al., 2014; Phadungdet, 2014; Thapayom, 2012), the results of this thesis do not confirm that expectation. There are three possible explanations for the negative results in this study that can be inferred from previous studies related to MAPR.

First, the incoming lead audit partner has a lack of client-specific knowledge following MAPR. The study by Lennox et al. (2014) also points out that the less well-informed the lead audit partner is about a client's operations, the less likely he or she is to identify financial reporting risks, which may impair the audit quality even after MAPR. In the IAASB's (2014) framework for audit quality, the accumulated client-specific knowledge of a lead audit partner is taken as an input factor that contributes to audit quality improvement. This is discussed in Chapter 2 as the conceptual framework for this thesis. At an engagement level, a lead audit partner is expected to be sufficiently knowledgeable about a client's business operations (IAASB, 2014). However, the operations might be diversified into many lines of business (Gipper et al., 2018), which may impact on the ability of the new lead audit partner to gain as much client-specific information as possible before the rotation. This may have an influence on audit quality, at least in the Thai setting.

In the Thai market, client-specific knowledge, such as the audit partners' understanding of their client's businesses and internal control systems, is highlighted as an influencing factor for financial reporting quality and audit quality (Kitiwong, 2014; Pornupatham, 2006; Sangkasuwan, 2005). However, there is no prior Thai study that has investigated this client-specific knowledge in regard to the MAPR requirement. In this study's sample, 89 percent of listed companies that have MAPR mostly rotated their lead audit partner within the same audit firm. One prior study by Kitiwong (2014), who investigated audit quality in Southeast Asia, claims that a new audit partner is more likely to use similar audit team members to those used by the prior partner, which suggests an attempt to maintain the same client-specific knowledge. In this way, it seems that MAPR does not necessarily improve audit quality and the continuity of the same audit team may reduce the impact of knowledge loss of an outgoing audit partner on audit quality (Sanders et al., 2009).

The argument that the incoming audit partner may have an inadequate understanding of the client's business operations, in a transition period of MAPR, due to various lines of business is evidenced in the Thai capital market. In the sample for this study, approximately, 70 percent of listed companies in the Thai market have more than two lines of business, for example, Berli Jucker PCL (BJK). BJK, which is the largest company in the Thai service industry, operates five business lines. BJK is involved in the manufacturing, marketing and distribution of glass containers, aluminium cans and rigid plastic containers. This company also runs their business in the following ways: producing and distributing various consumer products; importing and distributing healthcare and technical products; operating various types of modern trade and drugstores; and providing information technology systems. It may not be easy for a new lead audit partner to acquire all the information about these various business areas of BJK within the MAPR transition year.

The lack of sufficient and specific knowledge about a client's operations by an incoming lead audit partner may not promote higher audit quality (Chi et al., 2009; Gipper et al., 2018; Myers et al., 2003), especially when the client has very diversified business areas. The client's widespread nature of operations may lead to difficulty for an incoming audit

partner in possessing specific knowledge of their operations, and therefore the financial reporting practices in the MAPR transition year, leading to higher information asymmetry between the lead audit partner and management (Litt et al., 2014). If management take this opportunity to engage in transactions for managing the earnings of the company, audit quality cannot be achieved (Bedard & Johnstone, 2010; Litt et al., 2014). This argument is consistent with the explanation provided by agency theory about information asymmetry and agency cost as discussed in Chapter 2, Section 2.1.

Previous studies also claim that the client-specific knowledge of an outgoing audit partner who has experience in a client's business may not be immediately replaced by an incoming audit partner (Arruñada & Paz-Ares, 1997; Chi et al., 2017; Johnson et al., 2002). Since higher audit quality requires knowledge about a specific client's processes, operations, risk-related issues and internal control systems (Cassell, Hansen, Myers, & Seidel, 2016; Chi et al., 2017; Leung et al., 2015; Litt et al., 2014), a new audit partner may not gain adequate in-depth knowledge of a client's business in order to perform an effective audit in the transition period of MAPR (Geiger & Raghunandan, 2002; Gipper et al., 2018).

It is also possible that there is a challenge in communication with the new client (Bobek et al., 2012). The study by Bobek et al. (2012) suggests that communication in auditor-client interactions develops over time and forms the basis of the auditor-client relationship (Sampet, Sarapaivanich, & Patterson, 2019). This relationship, such as between a lead audit partner, and management and chief financial officer (CFO), is an important part of the audit process in acquiring a client's business operation information (Bobek et al., 2012), especially when assessing the inherent, control and detection risk. Adequate information is likely to assist a lead audit partner to perform audits efficiently and it therefore increases audit quality.

These interactions between the audit partner and management are identified as key interactions within the financial reporting supply chain and are factors in the conceptual framework. The IAASB (2014) requires management to provide such information in an open and constructive manner. Effective communication between a lead audit partner

following MAPR and management is likely to encourage higher audit quality. However, there are no studies in the Thai context that examine the interaction between audit partner and management following MAPR.

Previous studies have also shown that the relationship between the new lead audit partner and management needs time to develop (Lennox et al., 2014; Myers et al., 2003). In the transition year of MAPR, the incoming audit partner is constrained by the time needed to focus on growing personal relationships with clients, limiting his or her ability to accumulate sufficient knowledge and understanding of the new client. This might not increase audit quality. The effect of growing personal relationships with clients following MAPR has not, to date, been observed in the Thai capital market.

Further, the new audit partner's gradual learning curve might also be a factor in why MAPR did improve audit quality in the Thai context in this study. The learning curve effect is present, especially if the new client has a complex operation involving overseas operations. The lead audit partner's understanding of the complexity of a client's business operations and their industry is also highlighted as a key attribute in input factors that affect audit quality based on the framework for audit quality by the IAASB (2014). The IAASB (2014) states that a lead audit partner needs sufficient time to be able to understand a company's business and industry in order to evaluate the risks of material misstatement in a client's financial reporting, as well as for audit efficiency. Under time constraints, however, a new lead audit partner may face obstacles to having a complete understanding of a new client's complex operations. This may be reflected in the insignificant improvement in audit quality, at least in the Thai market as evidenced in this study.

None of the previous Thai studies have highlighted new lead audit partner challenges in accumulating knowledge about complexity of a new client as an input factor for the audit quality framework. In the Thai market, almost all listed companies have at least two subsidiaries and affiliates, and one-third of these companies are subsidiaries of foreign corporations. For example, Charoen Pokphand Foods PCL (CPF), which is the largest listed company in the agro and food industry, operates in agro-industrial and integrated

food businesses. CPF operates both import and export businesses in over 30 countries. Moreover, CPF has over 200 subsidiaries that are located in Thailand and overseas, such as in the U.K., Russia, Denmark and China. In the case of CPF, an incoming audit partner may not be on a fast learning curve to possess a complete understanding of a company and its subsidiaries' businesses in the short time following MAPR. A higher audit quality is thus less likely to exist in the first year of a new lead audit partner's engagement (Geiger & Raghunandan, 2002; Lennox, 2014). The impact of the number of MAPRs experienced by companies is discussed in Section 5.2.2.

Consistent with this argument, previous studies in different settings state that an observed adverse effect of MAPR on audit quality could be due to the difficulty in knowledge improvement or hard-to-learn-tasks in the first few years after MAPR. This was the case in studies in the U.S. market (Geiger & Raghunandan, 2002; Litt et al., 2014), the Taiwanese market (Chi et al., 2009), and in European markets (Stakebrand, 2016). The audit partner's learning gain about a specific client only develops through their actual audit experience over time with the client (Chi et al., 2009; Geiger & Raghunandan, 2002; Lanen et al., 2017).

In summary, a new lead audit partner's learning curve does not progress significantly enough within the time available to understand the client's business operations and industry environment following MAPR (Chi et al., 2009; Geiger & Raghunandan, 2002; Gipper et al., 2018; Litt et al., 2014), in order for the audit partner to become an expert about that client (Sanders et al., 2009). The engagement-specific information is acquired and integrated over time (Sanders et al., 2009) and the audit quality improvements might follow over time.

Lastly, while the rotation of a lead audit partner as part of the MAPR requirement introduces the fresh perspective of the new partner to the audit process, and introduces a possible new direction for the audit and the audit team members (Hamilton et al., 2005), audit quality does not necessarily improve due to challenges in effective communication within the audit team.

Effective communication is underlined as a process factor that enhances audit quality through the IAASB's (2014) framework for audit quality. Even though the IAASB (2014) framework points to communication between the group engagement team and the component auditors, it could also be inferred to be about the interaction of a new audit partner and the audit team members. In this way, effective communication within the audit team possibly reflects the new lead audit partner's views following MAPR, and that is most likely to benefit the audit process and ultimately enhance audit quality.

There are no previous studies in the Thai context that examine the effectiveness of the communication and interaction within the audit team and the effects of that communication on audit quality related to MAPR. Previous studies in other settings document that regardless of having a new lead audit partner or not, the same or similar audit team members are maintained on an engagement and this may not contribute to a significant increase in audit quality (Monroe & Hossain, 2013). Monroe and Hossain (2013), and Lee (2015), point out that similar audit team members are more likely to use the routine audit programme and checklists based on previously used risk assessments, rather than creating new and appropriate methodologies fitted to the current circumstances. The new incoming audit partner may also be relying on the same procedures and working papers generated from previous audits, while trying to learn more about the new client. In this way, immediate new insights of a new audit partner might not be applicable to the audits following MAPR. Another study by Gipper et al. (2018) suggests that the rotation of the audit team rather than the rotation of the lead audit partner is likely to promote a higher audit quality.

In the Thai context, prior studies have examined the relationship between a new lead audit partner and audit team members when using prior years' working papers and their relation to audit quality. A study by Laomaneerattanaporn (2015) examines the use of electronic working papers in the Thai market, and finds that the same audit team members year after year are more likely to lean from static audit programmes and prior years' working papers to facilitate their audits. This is because static audit programmes are designed in response to auditing standards requirements (Kitiwong, 2014), and prior years' working papers are used as guidelines for the current year's audit (Laomaneerattanaporn, 2015). However,

this use of prior years' audit documents may not fully reflect the current client's business situation and may not completely incorporate the incoming audit partner's view. In this way, audit quality is less likely to significantly improve in the transition year of MAPR as the actual audit procedures performed might not alter significantly in the first year following MAPR.

Further, the relationship between a new lead audit partner and other audit team members needs time to develop. The study by Ballinger and Schoorman (2007) investigates an individual's reactions to leadership succession in working groups, and suggests that the change of a lead audit partner affects the audit work processes, performance, and also the work attitudes of team members, but not necessarily in a positive way. Inadequate communication by the new audit partner moderately establishes a good working relationship with other members in the team in the first year of MAPR (Ballinger & Schoorman, 2007). In this way, the benefit of rotating a new audit partner may not significantly increase the subsequent audit quality.

In conclusion, this thesis finds a weak relationship between MAPR and a higher audit quality when measured by the level of DA in the Thai market. The three possible explanations are that, first, MAPR leads to the loss of client-specific knowledge of an outgoing audit partner who has five consecutive years of experience with a client. An incoming audit partner following MAPR who lacks client-specific knowledge in the transition year may not improve the audit quality for a client. Second, the gradual learning curve of an incoming audit partner on an audit of a new client with complex business operations may be detrimental to an increase in audit quality in the transition period. Lastly, the obstacles to the full impact of a new perspective from a new audit partner come from using template audit programmes from previous years and less developed communication between the new audit partner and the incumbent audit team members, all of which are less likely to lead to an increase in audit quality, at least in the Thai capital market; thus, H1 is rejected. There is no improvement in audit quality as a consequence of listed companies having multiple MAPRs in Thailand.

The next section examines the effect of different numbers of MAPR on audit quality where audit quality is measured by the level of DA.

5.2.2 The effect of different numbers of MAPR

The results of the regression analysis reveal different effects of numbers of MAPR on audit quality as presented in Table 5.8. By using 1 MAPR as a benchmark, listed companies having 2 MAPRs have a positive direction (higher DA), indicating a lower audit quality compared to 1 MAPR. However, listed companies with 3 MAPRs have a negative direction (lower DA), indicating a higher audit quality compared to companies that have 1 MAPR, as illustrated in Figure 5.1.

Figure 5.1: Effect of different rotation numbers of MAPR on audit quality measured by DA that uses 1 MAPR as a benchmark

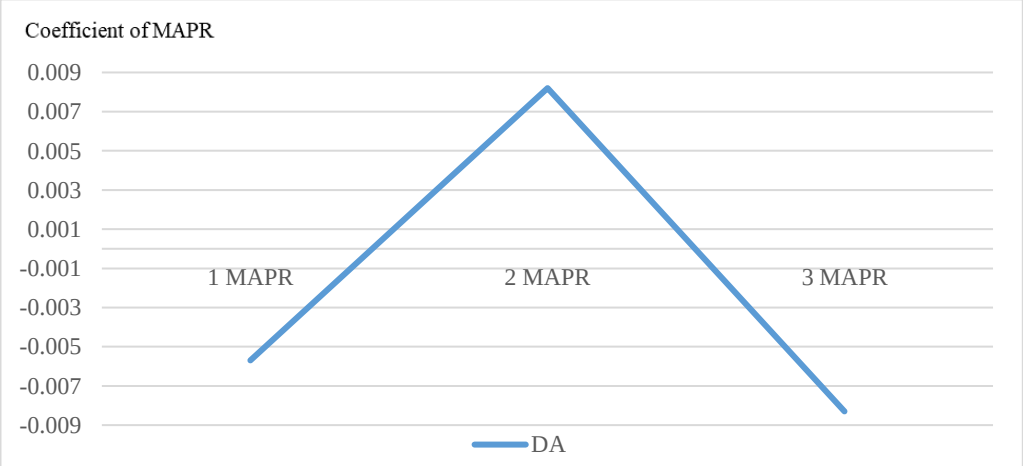


Figure 5.1 suggests that different numbers of MAPR did have a different impact on audit quality. However, due to the small sample, these results are inferred with caution. It is thus not conclusive that that there is a higher audit quality when having more than one MAPR in the Thai capital market.

Based on the study by Gipper et al. (2018) and the framework for audit quality by IAASB (2014) used in this thesis, it is possible that contextual factors could play a role in audit quality and that such factors have an impact on findings in this thesis. These factors include countries' economic conditions, the accounting environment, and corporate governance in the Thai market. The improvement in audit quality was found in Thai listed companies having 3 MAPRs. In the third period of MAPR, in 2016 to 2017, Thailand's economic environment was stable and economic growth was expected to moderate to 2.5 percent (World Bank Group, 2016b). In the same period, a large number of Thai Accounting Standards (TAS), Thai Financial Reporting Standards (TFRS), and Thai Financial Reporting Interpretations Committee (TFRIC) Standards had been fully complied with. In addition, since 2012, international accounting standards such as IAS, IFRS and IFRIC have been continuously mandated in the Thai capital market (DeGeorge, Li, & Shivakumar, 2016; FAP, 2017). This continual high-quality accounting standard adoption potentially improved the comparability and transparency of financial information and also possibly supported the improvement of audit quality in the Thai market during this period (FAP, 2017).

Moreover, since 2013, the Principles of Good Corporate Governance 2012 have also been issued by the Stock Exchange of Thailand (SET). The principles require listed companies to provide transparent and reliable information disclosure to the market (Suttipun, 2018). The Principles of Good Corporate Governance 2012 were developed and revised to keep abreast with current economic and business conditions (SET, 2014). These requirements emphasise better internal control structures, such as a controlled environment and activities (Ball, 2016; Cohen, Krishnamoorthy, & Wright, 2002; Meeampol, Rodpetch, Srinammuang, & Wongsorntham, 2013). All these requirements are therefore most likely to have enhanced corporate governance in Thai listed companies and are likely to have indirectly increased the audit quality.

On the other hand, listed companies that have 2 MAPRs have a positive direction of DA and a lower audit quality compared to 1 MAPR. Since the second MAPR of 2 MAPR companies occurred from the year 2011, there are three possible reasons that could help explain the results. First, a large number of TAS/TFRS/TFRIC were translated from

international standards and these converged and were mandated in the Thai capital market in 2011 (Klose & Sabangban, 2011; Pothong, 2014). The mandatory TAS/TFRS/TFRIC had a substantial impact on companies' financial incomes. For example, at the time of the first adoption of TFRIC 4 "Determining whether an arrangement contains a lease" and TFRIC 20 "Stripping costs in the production phase of a surface mine", TFRIC 4 and TFRIC 20 required Thai listed companies to recognise accounting transactions in the financial statements, which affects net incomes. This can be seen in Banpu PLC (BPP)'s financial reporting in 2011. BPP is the largest company in the resources industry, operating in the coal mining and power businesses. BPP first adopted TFRIC 4 and TFRIC 20, which cost the company 1,125.81 billion Baht (34.66 million USD) and decreased net income in 2011 by approximately 20 percent. Further, Sub Sri Thai PCL (SST), a company in the agro and food industry segment, had the highest level of DA in 2011. SST first adopted TAS 40 (revised 2009) "Investment Property", which impacted on their expenses in 2011 by decreasing net income by 197.75 million Baht (6 million USD) or approximately 47 percent.

In the same year, 2011, Thailand's economy suffered from a great flood, affecting seven major industry parks and causing losses of over 46.5 billion USD (Haraguchi & Lall, 2015). This also reduced the GDP growth in 2011 from 2.6 percent to 1.0 percent (Bank of Thailand, 2012). During this period, almost all companies recorded impairment in their accounts for both inventories and property, and plant and equipment. The companies' net income and the level of DA also suffered. For example, TCM Corporation PCL (TCMC), a company in the property and construction industry, recorded losses from damaged assets caused by flooding of 219.94 million Baht (7 million USD). This loss decreased total assets in 2011 by approximately 21 percent. That same year, TCMC also recorded losses due to inventory write-offs of 15.63 million Baht (0.5 million USD), approximately 12 percent of their net loss.

Corporate governance is also highlighted as a crucial factor influencing audit quality (Cohen et al., 2002; Meeampol et al., 2013) as per the IAASB (2014) framework for audit quality. During 2011, the Principles of Good Corporate Governance for Thai listed companies required by the SET were yet to be revised to be more comprehensive and

compatible with the current market conditions. Even though listed companies had followed the Principles of Good Corporate Governance since 2006, the effects might not have been reflected in the business environment and thus were not likely to have affected audit quality during this period. For example, the Thai Institute of Directors Association (2012) reported a lower overall average of Thai listed companies' corporate governance scores in 2011 compared to the 2010 year. The reported decrease was three percent points. It could be expected that during the period observed in this study, the outdated corporate governance requirements, in conjunction with the transitional new accounting standards environment and adverse economic conditions, were not conducive to improvements in audit quality in spite of the MAPR requirements in the Thai market.

In summary, the results of the regression analysis report show that MAPR does not significantly enhance audit quality measured by the level of DA in Thai market. Even though different numbers of MAPR seems to affect the DA level (indicated by the coefficients), the lack of the effect of MAPR on audit quality in the Thai market could be contributed to by other environmental factors that are not captured in the model in this thesis. As indicated by IAASB (2014) in Chapter 2, the relationship between MAPR and audit quality could be influenced by various contexts affecting the economic situation, such as the accounting environment and the corporate governance quality during the period.

In order to strengthen evidence and reaffirm these main results, this thesis conducts tests using additional variables, such as the interaction of variables, as discussed in Section 5.5.1, and uses other measurements of audit quality, as discussed in Section 5.5.2. Under certain conditions, these variables and measurements did provide different results.

Using additional tests, this thesis also investigates the audit quality of listed companies that rotated both their lead audit partner and audit firm (AFR) at the same time. The results of these tests show that there is no significant improvement in audit quality for listed companies having MAPR and AFR at the same time. These results are presented in Appendix 13. There are only 47 firm-year observations (11 percent of this thesis's sample) that have MAPR and AFR at the same time during the observation period in this

thesis. This is a very small number of observations. This small number of AFRs cannot provide substantial evidence about the effect of AFR occurring at the same time as MAPR, on audit quality in the Thai market. As such, further discussion of these investigations is excluded from the overall findings of this thesis.

The results of control variables tests are discussed in the next section.

5.2.3 Control variables

Table 5.9 presents partial results from the regression of DA on control variables used in the model of this thesis (full results are presented in Table 5.8). The results show strong evidence of the association between audit quality measured by the level of DA and listed companies' size (SIZE), cash flow from operating activities (CFO), net loss (LOSS) and leverage (LEV). However, there is weak evidence of the relationship between audit firm size (BIG4), audit quality and companies' age (AGE), and industries' growth rate (INDGROW).

Table 5.9: Partial results of the effect of MAPR on audit quality measured by performance-matched modified DA

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	1 MAPR Coefficient (t-statistic)		2 MAPR Coefficient (t-statistic)		3 MAPR Coefficient (t-statistic)	
Control variables							
BIG4	-	-0.0001		0.0001		0.0009	
		(-0.0203)		(0.0216)		(0.1443)	
AGE	-	-0.0003		-0.0003		-0.0001	
		(-0.7973)		(-0.7323)		(-0.2624)	
SIZE	+	0.0054	**	0.0052	**	0.0055	**
		(2.4031)		(2.3093)		(2.4730)	
INDGROW	+	-0.0411		-0.0422		-0.0362	
		(-1.4442)		(-1.4898)		(-1.2849)	
CFO	-	-0.6597	***	-0.6633	***	-0.6630	***
		(-22.9424)		(-23.0177)		(-22.8650)	
LOSS	-	-0.0574	***	-0.0581	***	-0.0579	***
		(-7.1464)		(-7.2284)		(-7.1892)	
LEV	+	-0.0484	***	-0.0484	***	-0.0485	***
		(-3.2134)		(-3.2176)		(-3.2173)	
Intercept		0.0698	*	0.0667	*	0.0574	
		(1.6693)		(1.6514)		(1.4353)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.572		0.573		0.572	
F-value		70.517	***	70.911	***	70.487	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Listed companies' size (SIZE)

The coefficient of SIZE of all different numbers of MAPR is positive and significant (coefficient = 0.0052 to 0.0055, p-value = 0.0500), as expected. The results suggest that the larger listed companies' size is related to the higher level of DA that indicates lower audit quality (Becker et al., 1998; Kwon et al., 2014; Matthews, 2012). This is because larger listed companies are likely to have more opportunities to manage earnings through the level of DA. It is because they are likely to have large business transactions, which may lead to a higher level of DA (Carcello & Nagy, 2004b; Chi et al., 2009; Dechow &

Dichev, 2002; Myers et al., 2003). In this case, the large companies generally have lots of transactions and complicated businesses, so it can be difficult for a new audit partner following MAPR who has less experience with the new client to mitigate the higher level of DA (Ahmad, Anjum, & Azeem, 2014; Kiattikulwattana, 2014). At least in the Thai market, it seems that larger companies having MAPR are likely to record a higher level of DA which indicates lower audit quality. In order to reaffirm this evidence on the impact of listed companies' size as related to MAPR and audit quality, this thesis performs further testing to investigate the interaction effects of MAPR and SIZE. The results are discussed in Section 5.5.1.2.

Cash flow from operating activities (CFO)

The coefficient for CFO of all the different rotation times of MAPRs is negative and significant (coefficient = -0.6633 to -0.6597, p-value = 0.0100). This strong evidence suggests that listed companies having higher CFO are likely to have better financial net income. As such, those listed companies tend to have less aggressive accounting practices in their statements, evidenced by a lower level of DA, and thus, they would receive higher audit quality (Bandyopadhyay et al., 2014; Chi et al., 2009; Dechow, 1994; Myers et al., 2003). Since prior studies in the Thai market regarding MAPR did not include CFO in their models, this thesis' results support prior studies in other developing markets, (Brown, Preiato, & Tarca, 2014; Choi & Wong, 2007), such as the Taiwanese market (Chi et al., 2009; Myers et al., 2003) and the Chinese market (Bandyopadhyay et al., 2014). These prior studies point out that a lower level of DA, indicating higher audit quality, is more likely to be found in companies having higher CFO.

In the Thai market, the study by Pornupatham (2006) suggests that Thai listed companies with higher CFO are likely to report income-decreasing accruals, a more conservative accounting choice (Kim, Chung, & Firth, 2003). In this thesis, the level of DA is used as a proxy for audit quality. In conjunction with CFO, which are also an indicator of higher quality company, it can be assumed that the listed companies with high CFO are less likely to need to engage in financial statements manipulation.

Net loss (LOSS)

The results in this thesis indicate the relationship between net loss (LOSS) and audit quality measured by the level of DA. The coefficient of LOSS of the different numbers of MAPRs is negative and significant (coefficient = -0.0581 to -0.0574, p-value = 0.0100), as expected. The companies with net loss are expected to have more scrutiny from regulators and therefore are more averse to report a higher level of DA (Francis & Yu, 2009). Listed companies having negative earnings are thus likely to report a lower level of DA (Francis & Yu, 2009). It could be inferred that the incoming lead audit partner would be more cautious about the level of DA of listed companies having LOSS. In this way, these LOSS companies are possibly receiving higher audit quality. Unlike prior studies in the Thai market, this thesis is the first to include LOSS in the study's model as a control variable in order to examine the effect of MAPR on audit quality. This thesis' results are insightful in highlighting LOSS as a factor that can impact on the level of DA and subsequent audit quality in the Thai market.

The Thai study by Pornupatham (2006) reveals that Thai listed companies attempt to avoid losses due to poor performance. This can imply that a lead audit partner, including a new audit partner following MAPR, focuses more on the level of DA in order to mitigate income-increasing accruals, especially for under-performing companies. In this way, companies with losses are less likely to manage their earnings by using DA and the results of this study provide evidence to support Pornupatham's (2006) suggestions.

Listed companies' leverages (LEV)

There is also strong evidence of the association between companies' leverages (LEV) and audit quality as measured by the level of DA. The coefficient of LEV of the different numbers of MAPRs is negative and significant (coefficient = -0.0485 to -0.0484, p-value = 0.0100), but is not consistent with the majority of other studies. In general terms, listed companies having a higher leverage may have an incentive to report earnings upward in order to avoid violation of a debt covenant (Bandyopadhyay et al., 2014; Defond & Jiambalvo, 1994). The results presented in this thesis suggest that highly leveraged companies tend to have a lower level of DA in the MAPR year. It is possible that listed companies with high levels of debt are not likely to undertake earnings distortions through

lower DA. This argument is consistent with the study by Peni and Vähämaa (2010). They describe that companies with poor performance may have a strong incentive to decrease earnings accruals in order to renegotiate with lenders (DeAngelo, DeAngelo, & Skinner, 1994). In the Thai market, listed companies with high leverage are less likely to report higher earnings by increasing the level of DA to conceal poor performance (Pornupatham, 2006). The study by Pornupatham (2006) also suggests that companies may have a good relationship with a local bank and may renegotiate loan/debt conditions based on their incomes without needing to use accounting manipulation of their earnings. In this thesis, it is possible that the incoming audit partner following MAPR who brings "a set of fresh eyes" to the audit would be more cautious on listed companies having higher leverage, thus providing a higher audit quality to these highly leveraged companies.

Audit firm size (BIG4)

There is weak evidence of an association between audit quality measured by the level of DA and BIG4. The coefficient of BIG4 is negative and insignificant (coefficient = -0.0001, t-stat = -0.0203) for listed companies having 1 MAPR. However, the coefficient of BIG4 of listed companies having 2 MAPRs and 3 MAPRs is positive but also insignificant (coefficient = 0.0001, t-stat = 0.0216 and coefficient = 0.0009, t-stat = 0.1443, respectively).

Overall, there is no significant difference between Big 4 audit firms and non-Big 4 audit firms when it comes to audit quality of listed companies having MAPR in the Thai market. This result is consistent with the study by Pornupatham (2006) who examines earnings management, audit quality and corporate governance in Thailand. Pornupatham (2006) suggests that even though Big 4 audit firms are highly and well-resourced for audits, they may not significantly restrict the level of DA as compared with non-Big4 audit firms. In this thesis, audit quality measured by level of DA does not seem to be significantly different from non-Big 4 auditors' quality in the MAPR transition year. However, Pornupatham's (2006) study did not focus on the MAPR requirement.

In terms of the direction of the coefficient of BIG4, there are different signs of coefficients between the listed companies having 1 MAPR and multiple MAPRs. These results suggest that Big 4 audit firms appear to have a negative relationship with the level of DA (negative coefficient of BIG4) when compared to non-Big 4 audit firms. This can be explained as higher audit quality only for listed companies with 1 MAPR that have no prior MAPR experience. This seems to suggest that the more established and well-resourced Big 4 audit firms that have better access to audit resources (Litt et al., 2014) and are faster at acquisition of knowledge and experience (but only in the initial year of auditing a new client), provide better audit quality. That applies for a client who only experiences the first MAPR (Chi & Huang, 2005). Audit quality is thus likely to increase but insignificantly when an incoming lead audit partner is a member of a Big 4 audit firm for listed companies having the first MAPR.

The evidence in this study also suggests that Big 4 audit firms do not seem to have a negative relationship with the level DA (positive coefficient of BIG4) for listed companies having 2 MAPR and 3 MAPR when compared to non-Big 4 audit firms in Thai market. In the case of multiple numbers of MAPR, the results of this study suggest that the learning experience from multiple MAPR is more pronounced for non-Big 4 audit firms than for Big 4 audit firms. There seems to be an incremental effect of multiple MAPRs based on the first MAPR experience. Overall, the results of this thesis show that, compared to non-Big 4 audit firms, the Big 4 audit firms do not appear to have significantly influenced audit quality as measured by the DA of Thai listed companies having multiple numbers of MAPRs.

These inconclusive associations between BIG4 and audit quality measured by the level of DA is further tested in this thesis. Additional tests are conducted to examine the impact of the interaction effects of MAPR and BIG4 on audit quality, which is discussed in Section 5.5.1.1. The BIG4 is also observed as an audit firms' attribute factor that is expected to impact on audit quality and is discussed in Section 5.3. Further, these results point to specific conditions in which MAPR can have an influence on audit quality, at least in the context of Thailand.

Listed companies' age (AGE)

This thesis' results also find weak evidence of some association between audit quality as measured by the level of DA and AGE. The coefficient of AGE of all the different numbers of MAPR is negative and insignificant (coefficient = -0.0003 to -0.0001, t-stat = -0.7973 to -0.2624), which is expected. Since the level of DA of listed companies differs in each stage of companies' life-cycles, it is found that those in the early life-cycle stage have more extreme growth and higher capital expenditure and are more likely to be financially distressed (Anthony & Ramesh, 1992), and therefore, such companies use higher levels of DA (Chi et al., 2009; Lee, 2015; Myers et al., 2003). Conversely, the more mature listed companies are likely to have less pressure on their financial situation and thus report lower levels of DA (Chi & Huang, 2005; Chi et al., 2009; Lee, 2015; Myers et al., 2003). These results are supported by Phadungdet's (2014) study, which included companies' age as one of the control variables in the study of audit quality following MAPR in the Thai market. Phadungdet (2014) reported that a lower level of DA was found in more sophisticated and older companies. This leads to the assumption that the more mature the listed companies with MAPR, the less pressure they are under to engage in financial statements manipulation; and therefore their audits are of higher audit quality.

Industries' growth (INDGROW)

Following the study by Chi et al. (2009), and Myers et al. (2003), this thesis also includes INDGROW in the model to examine audit quality following MAPR. The results of this thesis find no relationship between audit quality and INDGROW, which is not as expected. The coefficient of INDGROW of all the numbers of MAPR is negative and insignificant (coefficient = -0.0422 to -0.0362, t-stat = -1.4898 to -1.2849). These results would suggest that listed companies with high industry growth tend to report a lower level of DA and are having good financial performance. In other words, listed companies in industries with high growth may have less motivation to use income-increasing accruals to manage earnings.

In this thesis, the 82 percent of the companies in higher-growth industries have a lower average DA than listed companies in lower-growth industries. These results are consistent with Pornupatham (2006), who suggests that a lead audit partner is likely to focus on income-increasing accruals that possibly limit the financial statement manipulations and are likely to improve audit quality.

In conclusion, control variables such as SIZE, CFO, LOSS and LEV have an association with the level of DA. However, BIG4, AGE and INDGROW do not have a significant relationship with DA in this thesis. Since the level of DA is used as a proxy for audit quality, it can be concluded that BIG4, AGE and INDGROW have no effect on audit quality while SIZE, CFO, LOSS and LEV do, in this study.

Theoretically, there are other factors that are relevant when assessing audit quality, such as auditor attributes. Studies by Chi and Chin (2011) and Habib (2011) indicate that audit firm size and audit firm industry specialists have different effects on audit quality. Audit partners' attributes, such as audit partner industry specialists and audit partner busyness, also impact on audit quality (Goodwin & Wu, 2016; Zerni, 2012). The next section investigates the impact of auditor attributes on audit quality for listed companies following MAPR in Thailand.

5.3 Results of the effects of auditor attributes on audit quality in combination with MAPR

The purpose of this section is to study the impact of audit firm characteristics and audit partner traits on the level of DA for listed companies having MAPR in Thailand. Prior studies suggest that audit firm size or Big 4 audit firms are suggested as an influencing factor for a higher audit quality (Chi & Huang, 2005; Francis & Yu, 2009). Also, following the study by Arthur et al. (2017), this thesis examines the moderating effect of audit firm industry specialists (AFSPEC) and audit partner industry specialists (APSPEC) because of their superior industry-specific knowledge (Arthur et al., 2017; Goodwin & Wu, 2016; Liu et al., 2017; Zerni, 2012).

Further, this section also examines audit partner busyness (BUSY) because the literature shows that listed companies audited by BUSY are most likely to have lower earnings quality (Goodwin & Wu, 2016), possibly adverse financial reporting quality, and thus negative audit quality (Sundgren & Svanström, 2014). In this way, BUSY possibly impairs audit quality. This thesis is the first to investigate the effect of those attributes of audit firms and audit partners on the audit quality of companies having MAPR in Thailand.

Table 5.10 presents the partial results of the regression analysis of the impact of audit firm and audit partner attributes on audit quality for listed companies in Thailand having MAPR. The full results of this section are reported in Appendix 5.

Table 5.10: Partial results of effect of MAPR on audit quality measured by DA while considering audit firm and audit partner attributes

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AFSPEC_{it} + \beta_4 APSPEC_{it} + \beta_5 BUSY_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 INDGROW_{it} + \beta_9 CFO_{it} + \beta_{10} LOSS_{it} + \beta_{11} LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0057					
		(-0.9944)					
2 MAPR	-			0.0084			
				(1.5237)			
3 MAPR	-					-0.0091	
						(-1.0254)	
Audit firm attributes							
BIG4	-	0.0031		0.0039		0.0048	
		(0.3949)		(0.4925)		(0.6077)	
AFSPEC	-	-0.0050		-0.0058		-0.0060	
		(-0.6625)		(-0.7620)		(-0.7864)	
Audit partner attributes							
APSPEC	-	0.0031		0.0033		0.0029	
		(0.3024)		(0.3234)		(0.2844)	
BUSY	+	0.0011		0.0011		0.0011	
		(0.2662)		(0.2789)		(0.2805)	
Adj. R^2		0.569		0.571		0.569	
F-value		51.012	***	51.327	***	51.026	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

In Table 5.10, audit quality is also measured by using the level of DA. The sample used in this section is the same sample observed in Section 5.2.1, i.e. Thai listed companies having MAPR from 2006 to 2017. Control variables used in the section are that same as those used in Section 5.2.1, except BIG4, which is a test variable to investigate audit firm attributes. The fixed effects of both year and industry are included in the regressions.

The model used for the tests in this section is significant (F-statistics = 51.012 – 51.327). The overall adjusted R^2 equals 0.569 – 0.571, which is similar to the model used in Section 5.2.1 and is better than that reported in prior studies in the same area (Chen et al., 2008; Phadungdet, 2014; Siregar et al., 2012).

The results presented in Table 5.10 report that the coefficient of all different numbers of MAPR are insignificant. The coefficient sign of listed companies having 1 MAPR and 3 MAPRs is negative (coefficient = -0.0057, t-stat = -0.9944; coefficient = -0.0091, t-stat = -1.0254, respectively). Only the coefficient sign of 2 MAPRs is positive (coefficient = 0.0084, t-stat = 1.5237). Overall, the results of the regression analysis in this section reveal that MAPR is not related to audit quality measured by the level of DA of listed companies in the Thai setting. These results support the results detailed in Section 5.2.1.

The results of the regression analysis on audit firm attributes reveal that the overall coefficient of BIG4 is positive but insignificant (coefficient = 0.0031 – 0.0048, t-stat = 0.3949 – 0.6077), and the coefficient of AFSPEC is negative and insignificant (coefficient = -0.0060 – -0.0050, t-stat = -0.7824 – -0.6625). In terms of audit partner attributes, the overall coefficient of APSPEC is positive but insignificant (coefficient = 0.0029 – 0.0033, t-stat = 0.2844 – 0.3234), and the overall coefficient of BUSY is positive but insignificant (coefficient = 0.0011, t-stat = 0.2662 – 0.2805). Overall, there is no association between a higher audit quality measured by the level of DA and audit firm and audit partner attributes in listed companies with MAPR in the Thai market.

In terms of audit firm attributes, there is no strong evidence of audit quality improvement when listed companies are audited by BIG4 and AFSPEC. When including other audit

firm attributes, this implies that the client's level of DA of AFSPEC and BIG4 is indistinguishable from those of audit firms that are non-industry specialists and non-BIG4. Perhaps the audit firms capture industry specialisation through their knowledge-sharing practices, the use of a standardised industry-tailored audit programme (Chi & Chin, 2011), or the use of similar technologies invested to facilitate their audit (Gul, Fung, & Jaggi, 2009). Even though AFSPEC is likely to facilitate industry knowledge to their audit members through knowledge-sharing, such as training material and industry-specific databases (Zerni, 2012), this specialist knowledge may be difficult to document or transfer (Karjalainen, 2011; Sanders et al., 2009; Vera-Muñoz et al., 2006; Zerni, 2012) and may not be adequate to compensate for an outgoing audit partner's knowledge of the client's business. In this way, AFSPEC does not significantly improve audit quality in the transition year of MAPR, at least not in the Thai market.

The results for audit firm industry specialist (AFSPEC) support the findings of Arthur et al. (2017), who investigated the moderating effect of industry specialisation on audit quality in companies having auditor rotation in the Australian market. Arthur et al. (2017) indicate the offsetting effect of the beneficial fresh view of an incoming audit partner after the rotation, with the costs of the lost expertise and experience of an outgoing audit partner who cannot provide better audit quality, regardless of the client being audited by AFSPEC.

In this thesis, almost all AFSPEC over the observation periods are members of Big 4 audit firms. The results of the effect of BIG4 on audit quality in listed companies having MAPR are consistent with the results of Section 5.2.3; that is, BIG4 audit firms do not appear to influence a higher audit quality in Thai market.

Further, audit partner industry specialist (APSPEC) and an audit partner busyness (BUSY) do not significantly impact on audit quality measured by the level of DA in listed companies with MAPR in the Thai market. Consistent with the study by Sundgren and Svanström (2014), who state that BUSY may reduce the amount of time for each client because of the larger number of clients under time constraints, this may not result in a higher quality audit. Further, even though APSPEC is an industry specialist that has

more experience and built their expertise by performing more audits than anyone else in a particular industry (Goodwin & Wu, 2016), APSPEC may not acquire enough understanding of a client's business within the MAPR transition year due to the complexity of their client's operations, at least in this study in the Thai market. Audit quality is thus less likely to exist in the MAPR transition year for companies, even though they might be audited by a specialist (APSPEC).

The results of the tests in this section that include the control variables, as shown in Appendix 5, are consistent with the results in Section 5.2.3 – that is, SIZE, CFO, LOSS and LEV have a strong relationship with audit quality in listed companies that have MAPR in the Thai market.

In conclusion, there is no evidence of improvement in audit quality as measured by the level of DA as a consequence of MAPR when auditor attributes are considered. The results in this section do not support H2. In terms of audit firm size, there is no impact of BIG4 as an audit firm attribute on audit quality as measured by DA level. These results do not support H2a; that is, there is no improvement in audit quality for listed companies having MAPR when audited by Big 4 audit firms. The results also show that an audit firm industry specialist (AFSPEC) and an audit partner industry specialist (APSPEC), who have superior industry-specific knowledge, may not compensate for the client-specific knowledge of an outgoing audit partner. Therefore, it is less likely that there is higher audit quality after MAPR even when the partner or the firm are industry specialists. These results lead to the rejection of H2b and H2c. Also, there is insignificant association between BUSY and audit quality for Thai listed companies having MAPR. These results also reject H2d; that is, there is no difference in audit quality for listed companies having MAPR when they are audited by busy audit partners.

The results in Sections 5.2 and 5.3 examine listed companies having MAPR from 2006 to 2017, which are under the MAPR regime. The results report that MAPR does not greatly improve audit quality in the Thai market. It could be assumed that listed companies in the Thai market may be more familiar with the MAPR requirement under the MAPR regime through their direct MAPR experience or their indirect experience by

learning from other companies in the same industry. It is possible that audit quality could be experienced by companies that experience MAPR subsequent to VAPR. This thesis extends the tests by examining the effect of the first-time adoption of MAPR by Thai companies. The audit quality of listed companies having first-time MAPR (FMAPR) under the MAPR regime are compared with the audit quality of the last voluntary rotation of the lead audit partner (VAPR) of the same listed companies. Unlike previous studies, this thesis focuses only on listed companies that have the last VAPR in the five years before FMAPR.

5.4 Results of the effects of the first mandatory audit partner rotation (FMAPR) preceding voluntary rotation (VAPR)

The result of the regression analysis in this section reports that FMAPR does not relate to a better audit quality as measured by the level of DA compared with VAPR of the same listed companies. This test result therefore confirms the results in Section 5.2.1.

Table 5.11 presents the results of the regression analysis of the impact of the FMAPR compared to VAPR on the audit quality of Thai listed companies. The level of DA is used as an audit quality measurement. This section examines Thai listed companies having FMAPR in the period from 2006 to 2010 compared with VAPR in the period from 2001 to 2005. The fixed effects of both year and industry are included in the regressions. The full results of this section are reported in Appendix 6.

Table 5.11: Partial results of effect of FMAPR compared to the last preceding VAPR on audit quality measured by DA

$$DA_{it} = \beta_0 + \beta_1 FMAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	FMAPR Coefficient (t-statistic)	
Test variables			
FMAPR	-	-0.0089	
		(-0.7512)	
Adj. R^2		0.386	
F-value		15.132	***
Observations		181	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

The model used in this section's test is significant (F-statistics = 15.132) and the adjusted R^2 of this section equals 0.386, which is higher than the study by Chi et al. (2009) who look at the impact of the first MAPR in the Taiwanese market. This model therefore has better explanatory power than Chi et al. (2009).

In Table 5.11, the coefficient of FMAPR is negative but insignificant (coefficient = -0.0089 t-stat = -0.7512). This result indicates that FMAPR does not significantly improve audit quality measured by a lower level of DA in the Thai market compared to VAPR, and the relationship is weak.

This section's result is consistent with the main findings in Section 5.2.1. Regardless of whether it is a VAPR or a MAPR regime, there is no significant difference in audit quality for the same listed companies in the Thai market. This result is consistent with the study by Chi et al. (2009). The authors assume that the auditor's incentives and behaviour may significantly change under the MAPR regime, which may affect audit quality. However, FMAPR under the MAPR regime may not necessarily improve audit quality compared to VAPR under the VAPR regime (Chi et al., 2009). In the Thai market, it is possible that

audit quality measured by the level of DA of listed companies having FMAPR is impacted on by audit firm rotation (AFR) instead (Cameran et al., 2015; Jackson, Moldrich, & Roebuck, 2008; Kwon et al., 2014).

Typically, AFR automatically implies a lead audit partner rotation (Ionescu, 2014). The new audit partner, in conjunction with a new audit firm under the mandatory rotation regime, may be less efficient at auditing at the beginning of an engagement because of unfamiliarity with the client's operations (Kwon et al., 2014). In this study's observation period, 28 percent (51 firm-year observations) of Thai listed companies having FMAPR and VAPR also apply AFR.

In Thai market, regulators allow listed companies to voluntarily rotate the audit partner prior to MAPR period. This means, listed companies can rotate their lead audit partner before the fifth consecutive year. Over the period of 2006 to 2017, 37% of Thai listed companies have voluntarily rotated an audit partner within three to four years of their tenure. For example, Siam Food Products (SFP), which is one of the largest listed companies in agriculture and food industry, rotated the audit firm and the audit partner in 2008 after having the same lead audit partner for three years. In 2007, there was a change in the ownership structure of that company which was the primary reason for that change (Limpaphayom & Connelly, 2004). Such role of new shareholders in the auditor change was also evidenced in Siam Makro (SM), the top largest listed company in the Thai services industry. SM had changed its major shareholding in 2013 and voluntarily changed their audit firm and the lead audit partner in 2014. However, the study of the change in shareholding impacting on voluntary change of the audit firm and the lead audit partners as a consequence of that change in the Thai market is beyond the scope of this thesis.

The results of the regression analysis of the control variables support the results of the Section 5.2.3 control variables, as presented in Appendix 6. The results report strong evidence of the relationship between control variables, such as SIZE, CFO, LOSS and LEV and audit quality, as measured by the level of DA. However, there is weak evidence

of the relationship of the level of DA and other control variables, such as BIG4, AGE and INDGROW.

In conclusion, the audit quality of companies having FMAPR under the MAPR regime are not higher than the audit quality of the VAPR of the same companies under the VAPR regime in the Thai market; thus, this result does not support H3. There is no improvement in audit quality for listed companies post the first mandatory partner rotation.

The next section provides additional analyses as introduced in Section 4.2.4 and the results of the sensitivity tests as introduced in Section 4.2.5. These additional analyses are undertaken to strengthen and reaffirm the robustness of the main results in Section 5.2.1.

5.5 Additional analyses and sensitivity tests

This section provides the results of additional analysis in Section 5.5.1, and the results of sensitivity tests in Section 5.5.2. In terms of additional tests, two interaction effects are reported in sub-sections 5.5.1.1 and 5.5.1.2. Section 5.5.2 provides the results of the sensitivity tests using alternative measurements of audit quality. The results of these tests are specific to these particular conditions.

5.5.1 The effects of interactions on audit quality in companies with MAPR

Similarly to Chi et al. (2009), this section presents the results of the tests to investigate the effects of interactions on audit quality measured by the level of DA on listed companies with MAPR in the Thai market. Results of these additional tests provide further evidence on the effectiveness of MAPR on audit quality under certain conditions.

This study is the first to investigate interaction effects and audit quality in the Thai market. This includes the interactions of MAPR and BIG4 (MAPR*BIG4) and the interaction of

MAPR and SIZE (MAPR*SIZE) for the model used in Section 5.2.1. The observations for the interaction effects test are derived from the results of control variables when DA is used (Section 5.2.3), suggesting that BIG4 and SIZE are associated with audit quality. The results of these tests, presented in this section provide additional evidence about the impact of MAPR on audit quality. Other control variables, such as CFO, LOSS and LEV, have been considered for a number of interactions but the results of those test using those variables do not indicate any association between their interactions and audit quality. The interaction effects with the CFO, LOSS and LEV variables are thus excluded.

*5.5.1.1 The interaction of MAPR*BIG4*

The results of the main regression analysis in this thesis suggests that MAPR does not significantly improve audit quality measured by the level of DA in the Thai market. Those results are reported in Section 5.2.1. However, there is strong evidence of the relationship in the interaction of MAPR*BIG4 and audit quality measured by the level of DA for listed companies having 3 MAPRs; in other words, only listed companies with 3 MAPRs when audited by Big 4 audit firms have higher audit quality.

The partial results of the regression analysis of the effect of MAPR on audit quality measured by DA when considering the interaction of MAPR*BIG4 are presented in Table 5.12 and the full results are reported in Appendix 7.

Table 5.12: Partial results of effect of MAPR on audit quality measured by DA while considering the interaction of MAPR*BIG4

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 MAPR_{it} * BIG4_{it} + \beta_3 BIG4_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 INDGROW_{it} + \beta_7 CFO_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	1 MAPR Coefficient (t-statistic)		2 MAPR Coefficient (t-statistic)		3 MAPR Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0057 (-0.9984)					
2 MAPR	-			0.0080 (1.5016)			
3 MAPR	-					-0.0041 (-0.4621)	
MAPR*BIG4	+/-	0.0003 (0.1056)		0.0029 (1.1042)		-0.0056 (-1.9650)	*
Adj. R^2		0.573		0.574		0.575	
F-value		62.531	***	63.202	***	63.524	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

The same sample used in Section 5.2.1 is also used in Table 5.12. The result is significant (F-statistics = 62.531 – 63.524). Further, the overall adjusted R^2 equals 0.573 - 0.575, which is similar to the model used in Section 5.2.1 and higher than reported in prior studies (Chen et al., 2008; Phadungdet, 2014; Siregar et al., 2012). This model's explanatory power is thus greater than in prior similar studies.

In Table 5.12, MAPR does not significantly increase audit quality measured by the level of DA, and the relationship is weak. These results confirm the main results of this thesis. The coefficient of listed companies having 1 MAPR is negative but insignificant (coefficient = -0.0057, t-stat = -0.9984) and the coefficient of listed companies having 3 MAPRs is negative but insignificant (coefficient = -0.0041, t-stat = -0.4621), which indicates higher audit quality. However, the coefficient of listed companies having two periods of MAPR is positive and insignificant (coefficient = 0.0080, t-stat = 1.5016), which indicates a lower audit quality.

Further, the coefficient of the interaction of MAPR*BIG4 of listed companies having 3 MAPRs is negative and significant (coefficient = -0.0056, p-value = 0.1000). The coefficient of the interaction of MAPR*BIG4 of 1 MAPR is positive and insignificant (coefficient = 0.0003, t-stat = 0.1056). Also, the coefficient of MAPR*BIG4 of 2 MAPR is positive and also insignificant (coefficient = 0.0029, t-stat = 1.1042). Overall, there is a strong relationship between MAPR*BIG4 and higher audit quality but only for listed companies having 3 MAPRs.

These additional results provide evidence that when the interaction effect of MAPR and BIG4 is considered, the listed companies having 3 MAPRs have better audit quality but this is more pronounced over a long period of time. It is possible that larger audit firms have some advantages in accumulated specific client knowledge through their auditor tenure and the actual MAPR experience. Also, they can use that knowledge for an incoming audit partner better than non-Big 4 audit firms.

In the Thai market, almost all of the listed companies that have had 3 MAPRs are audited by Big 4 audit firms; that is, 76 percent of listed companies having 3 MAPRs (34 firm-year observations) are audited by one of the Big 4 audit firms. Further, 88 percent of the group using Big 4 audit firms (30 firm-year observations) are continuously audited by the same Big 4 audit firms for at least 12 financial years. For example, the financial statements of CH Karnchang PLC, which is the largest company in the property and construction industry, have been continuously reviewed and audited by EY Office Limited for at least 12 years over this thesis' observation period. In this way, it seems that Big 4 audit firms with relatively longer tenure have greater accumulated client-specific knowledge, such as the client's business, operations and internal control systems, which encourages higher quality and more efficient audits following MAPR in the Thai market. This argument supports findings of prior studies that longer audit firm tenure does not impair audit quality (Carcello & Nagy, 2004a; Geiger & Raghunandan, 2002; Myers et al., 2003; Ruiz-Barbadillo, Go´mez-Aguilar, & Carrera, 2009).

The results of the coefficient of control variables used in this section, as shown in Appendix 7, are consistent with the results in Section 5.2.3.

In summary, the results of this section support H1 under certain conditions; that is, audit quality appears to be better as discussed, in certain circumstances. Results report that there is a strong relationship between the interaction of MAPR*BIG4 and a higher audit quality but only for companies having 3 MAPRs. This is likely due to a greater accumulated understanding of the client's business. On the other hand, there is no strong evidence of an association between a higher audit quality and the interaction of MAPR*BIG4 in companies with 1 MAPR and 2 MAPRs. It is possible that some contextual factors may have negative effects on the audit quality of companies having the first two MAPRs. For example, audit quality measured by level of DA for the sample in this study might have been affected by the effects of flooding in 2011, the large number of new accounting standards in 2011 to 2012, and the corporate governance requirements introduced in 2006.

*5.5.1.2 The interaction of MAPR*SIZE*

The interaction of MAPR*SIZE is investigated as a possible influencing factor on audit quality for listed companies having MAPR in the Thai market. The interaction of MAPR*SIZE is considered because larger clients tend to have more complex businesses, a larger volume of transactions, and more complex business processes than smaller clients (Carcello & Nagy, 2004b; Gipper et al., 2018; Litt et al., 2014). An incoming audit partner following MAPR who does not have adequate knowledge about a larger client's business in the transition years of MAPR is less likely to detect or report material misstatements in a client's financial statements. This argument is consistent with the results in Section 5.2.3, explaining the relationship between SIZE and audit quality. In this way, it is conjectured that MAPR*SIZE interaction might possibly be a factor that affects audit quality, measured by the level of DA.

Table 5.13 presents partial results of the regression analysis of the effect of MAPR on audit quality measured by DA when considering the interaction of MAPR*SIZE. The full results are reported in Appendix 8. The same sample for this test is as used in Section 5.2.1.

Table 5.13: Partial results of effect of MAPR on audit quality measured by DA while considering the interaction of MAPR* SIZE

$$DA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 MAPR_{it} * SIZE_{it} + \beta_3 BIG4_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 INDGROW_{it} + \beta_7 CFO_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0047 (-0.8154)					
2 MAPR	-			0.0082 (1.5237)			
3 MAPR	-					-0.0068 (-0.7814)	
MAPR*SIZE	+/-	0.0045 (1.6612)	*	-0.0001 (-0.0556)		-0.0081 (-2.8334)	***
Adj. R^2		0.574		0.572		0.579	
F-value		63.259	***	62.879	***	64.627	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

The model used in this test is significant (F-statistics = 62.879 – 64.627), as reported in Table 5.13. The overall adjusted R^2 of this model equals 0.572 – 0.579, which is similar to the model used in Sections 5.2.1 and 5.5.1.1, and higher than in prior studies (Chen et al., 2008; Matthews, 2012; Phadungdet, 2014). The model thus considers the interaction of MAPR*SIZE as used in this study and has better explanatory power than prior similar studies.

In Table 5.13, MAPR does not significantly increase audit quality measured by the level of DA, and the relationship is weak. These results confirm the main results in Section 5.2.1 of this thesis. The coefficient of listed companies having 1 MAPR and 3 MAPRs are negative but insignificant (coefficient = -0.0047, t-stat = -0.8154; coefficient = -0.0068, t-stat = -0.7814, respectively), which indicates a higher audit quality. However, the coefficient of listed companies having two periods of MAPR is positive but insignificant (coefficient = 0.0082, t-stat = 1.5237), which indicates a lower audit quality.

The coefficient of the interaction of MAPR*SIZE of listed companies having 3 MAPRs is negative and significant (coefficient = -0.0081, p-value = 0.0100), and the coefficient of MAPR*SIZE of listed companies with 2 MAPRs is also negative but insignificant (coefficient = -0.0001, t-stat = -0.0556), which indicates higher audit quality. However, the coefficient of interaction of MAPR*SIZE of 1 MAPR is positive and significant (coefficient = 0.0045, p-value = 0.1000), which indicates lower audit quality. These overall results report that the interaction of MAPR*SIZE has an association with higher audit quality measured by a lower level of DA; that is, audit quality is dependent on company size.

The interaction of MAPR*SIZE is significantly negative, with a lower level of DA only for listed companies having 3 MAPRs. This means that only larger-sized listed companies with 3 MAPRs have a higher audit quality. Also, listed companies having 2 MAPRs have a similar direction of coefficient of interactions of MAPR*SIZE as 3 MAPRs, which is negative but insignificant. This means that a larger-sized listed company having multiple MAPR is most likely to be associated with a higher audit quality. It is possible that the larger listed companies have progressed better and produced higher quality financial statements based on the length of their MAPR experience. The learning curve cycle of larger companies is much shorter by them benefitting from the resources they might have (Lanen et al., 2017). In this way, there is a positive effect of the interaction of MAPR*SIZE on audit quality in the Thai market after multiple MAPRs. This is also evidenced by the significant positive DA of companies having 1 MAPR, which indicates a lower audit quality. The evidence in this thesis suggests that MAPR may not immediately increase the audit quality of larger companies and that it takes at least 2 to 3 MAPRs to achieve the desired audit quality outcomes in the Thai market.

The results of the coefficient of control variables used in the model testing the interaction between the company size and MAPR, as shown in Appendix 8, are consistent with the main results in Section 5.2.3 where the tests of control variables are presented.

The results in this section confirm that the interaction effect of MAPR*SIZE promotes a higher audit quality of listed companies having multiple MAPRs in the Thai market. The

results of this section support H1 under certain condition, i.e. larger companies with multiple MAPRs are likely to have higher audit quality. However, larger listed companies with 1 MAPR are likely to not have improved audit quality in the transition year of MAPR.

5.5.2 Sensitivity tests

In order to reaffirm the first main results and the additional analyses of the impact of MAPR on audit quality, this thesis considers different measurements of audit quality. The alternative measurements for audit quality in this thesis are: the DA signs; the current accruals (CA); the modified audit opinion (MAO); the going-concern opinion (GCO); and the abnormal working capital accruals (AWCA). The tests and results using the alternative measures of audit quality are discussed in the following sub-sections.

5.5.2.1 The DA signs

This sensitivity test runs the model used in Section 5.2.1 by using a partitioned sub-sample of full samples that are used in the main test. Following prior studies in the area of audit partner rotation, such as the study by Myers et al. (2003) in the U.S. market and Chi et al. (2009) in the Taiwanese market, the sensitivity test in this thesis partitions the full sample into two sub-samples based on DA signs. The first sub-sample is listed companies having positive DA (DA+) that have the value of a performance-matched modified Jones model greater than or equal to zero. The second sub-sample is listed companies having negative DA (DA-) that have the value of a performance-matched modified Jones model less than zero.

These DA signs are employed to investigate the companies' strategic accounting choices on earnings through the level of DA (Becker et al., 1998; Chi et al., 2009; Myers et al., 2003). It is possible that managers may use extreme income-increasing accruals or DA+ to overstate company earnings, or they may apply income-decreasing accruals or DA- to understate company earnings (Becker et al., 1998; Chi et al., 2009; Myers et al., 2003), which potentially impacts on audit quality; thus, the sensitivity tests in this thesis

separately employ DA+ and DA- as audit quality proxies to observe the impact of MAPR. The partial results of the regression analysis are presented in Table 5.14. The full results, including control variables and both year and industry-fixed effects, are reported in Appendix 9.

Table 5.14: Partial results of effect of MAPR on audit quality measured by DA signs

$$DA+_{it} / DA-_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	1 MAPR Coefficient (t-stat)		2 MAPR Coefficient (t-stat)		3 MAPR Coefficient (t-stat)	
Panel A: Partial results of effect of MAPR on audit quality measured by DA+							
Test variables							
1 MAPR	-	0.0002					
		(0.0265)					
2 MAPR	-			0.0073			
				(1.3186)			
3 MAPR	-					-0.0164	**
						(-2.0038)	
Adj. R^2		0.423		0.429		0.435	
F-value		19.451	***	19.843	***	20.357	***
Observations		202		202		202	
Panel B: Partial results of effect of MAPR on audit quality measured by DA-							
Test variables							
1 MAPR		-0.0034					
		(-0.5236)					
2 MAPR				0.0015			
				(0.2353)			
3 MAPR						0.0056	
						(0.4858)	
Adj. R^2		0.263		0.263		0.263	
F-value		10.566	***	10.528	***	10.560	***
Observations		215		215		215	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 5.14 shows the results of the regression analysis on the effect of MAPR on DA+ as presented in Panel A and the effect of MAPR on DA- as presented in Panel B. The models used in this thesis' sensitivity tests are significant (F-statistic of DA+ = 10.528 – 10.566 and F-statistic of DA- = 19.451 – 20.357). The overall adjusted R^2 of using DA+ as a

dependent variable equals 0.423 – 0.435, which is lower than reported in the study by Chi et al. (2009). On the other hand, the adjusted R^2 of using DA- equals 0.263, which is higher than reported in a prior study (Chi et al., 2009). Other prior studies, such as the those by Myers et al. (2003) and Lee (2015), did not report the goodness-of-fit to the audit quality model used in their studies.

The partial results of sensitivity tests presented in Table 5.14, Panel A, report that only the coefficient on 3 MAPRs becomes negative and significant in the income-increasing accruals sub-sample or DA+ (coefficient = -0.0167, p-value = 0.05), while other variables remain insignificant in both sub-samples. This means only listed companies with 3 MAPRs, which have a positive DA, are associated with a higher audit quality. The studies by Chi et al. (2009) and Myers et al. (2003) suggest that an incoming audit partner following MAPR potentially constrains extremely positive accruals to a smaller extent than an outgoing audit partner because auditor litigation is most likely related to the overstated financial reporting through income-increasing accruals.

In the Thai market, the regulator of SET tends to focus on the extremely positive accruals or income-increasing accruals as a factor contributing to the failure of the audit performance of listed companies (Charoensarb, 2011). For example, a lead audit partner of Circuit Electronic Industries PCL (CEI) had his licence suspended in 2011. It was found that CEI had understated its allowance for doubtful debt accounts in 2004. Consequently, CEI had overstated its net income by 787 million Baht (23 million USD, approximately). Even though there have been a very small number of audit failure cases in the Thai capital market, the new lead audit partner following MAPR, in this case, may have been cautioned by previous cases to pay more serious attention to income-increasing accruals through the level of DA+ of Thai listed companies. Further, listed companies having 3 MAPRs are most likely to be audited by the same audit firm for 12 years, as discussed in Section 5.5.1.1. It is thus possible that, after 2011, an incoming audit partner following MAPR potentially increased intensity of limiting the level of DA+ based on accumulated client knowledge. By reviewing prior years' working papers, the audit by an incoming audit partner leads to the lower level of DA+. That indicates higher quality

financial statements of listed companies that have 3 MAPRs. This is evidence of increased audit quality in the Thai market under certain conditions.

In summary, the results of the sensitivity tests support H1 under certain conditions. There is a significant improvement in audit quality as a consequence of MAPR only for listed companies with 3 MAPRs and companies which have a positive DA in the Thai market.

5.5.2.2 The level of CA

Some prior studies in international settings use the level of CA as an audit quality measurement, such as in the Taiwanese market (Chi et al., 2009) and the U.S. market (Myers et al., 2003), so to investigate the effect of MAPR. Prior studies assume that companies are more flexible in using the level of CA through current accounts to manipulate earnings rather than long-term accruals, such as DA (Barua et al., 2010). Therefore, the level of CA can reflect the quality of financial statements and possibly infer audit quality (Chi et al., 2009; Myers et al., 2003). Consistent with prior studies, in this section, the level of CA is employed to measure audit quality.

Table 5.15 presents the partial results of the regression analysis of the impact of MAPR on the level of CA as the dependent variable from 2006 to 2017 in the Thai capital market. The full results, including control variables and both year and industry-fixed effects, are reported in Appendix 10.

Table 5.15: Partial results of effect of MAPR on audit quality measured by CA

$$CA_{it} = \beta_0 + \beta_1 MAPR_{it} + \beta_2 BIG4_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INDGROW_{it} + \beta_6 CFO_{it} + \beta_7 LOSS_{it} + \beta_8 LEV_{it} + \lambda INDUS_{it} + \delta Year_{it} + \varepsilon_{ij}$$

Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0057 (-0.7485)					
2 MAPR	-			0.0147 (2.0596)	**		
3 MAPR	-					-0.0257 (-2.2100)	**
Adj. R^2		0.218		0.225		0.226	
F-value		15.512	***	16.112	***	16.216	***
Observations		417		417		417	

Significance levels for a two-tailed *t*-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

As reported above, the model is significant (F-statistics = 15.512 – 16.216) as presented in Table 5.15. However, the explanatory power that measures adjusted R^2 equals 0.218 – 0.226, which is lower than the audit quality measured by the level of DA (adjusted R^2 equals 0.572-0.573). This means that the model that used the level of DA as an audit quality measurement fits better with the sample in this thesis compared with the model that uses the level of CA (Rawlings, Pantula, & Dickey, 1998).

There are some Thai studies using CA to measure audit quality in the Thai market (Phadungdet, 2014; Thapayom, 2012). These previous studies do not discuss the explanatory power of their models such as the Taiwanese market (Chi et al., 2009), the U.S. market (Myers et al., 2003) and the Australian market (Carey & Simnett, 2006). This thesis' explanatory power of the model using CA is lower than when using DA. This means that the model using DA has better explanatory power than the model using CA. Therefore, this thesis maintains that the level of DA as the audit quality measurement to examine the effectiveness of MAPR in the Thai market is appropriate.

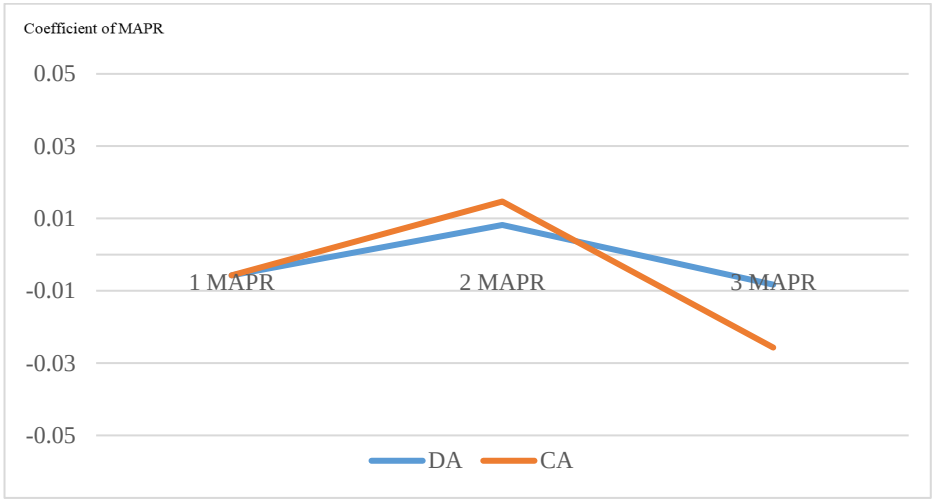
As can be seen from Table 5.15, the coefficient of the 1 MAPR requirement is negative and insignificant (coefficient = -0.0057, t-stat = -0.7485). Further, the coefficient of 3 MAPRs is negative and significant (coefficient = -0.0257, p-value = 0.0500). On the other hand, the coefficient of 2 MAPRs is positive and significant (coefficient = 0.0147, p-value = 0.0500). Overall, Table 5.16 reveals that the audit quality measured by the level of CA has a strong relationship with multiple numbers of MAPRs. It is possible that the level of CA could be useful in measuring the discretions in financial statements (Myers et al., 2003), as it is susceptible to earnings quality and financial statements quality, and then reflect audit quality (Chi et al., 2009).

These results reaffirm the sensitivity analysis that listed companies having MAPR are most likely to accumulate knowledge over time in preparing higher quality financial reports, and in subsequent years, rather than having an immediate impact of first MAPR on audit quality. When the audit quality is measured by CA, it seems to benefit companies that experienced 3 MAPRs and consequently the result is a lower level of CA. However, audit quality seems to be lower for companies having 2 MAPRs. This could be due to other external factors, as previously mentioned in Section 5.2.2. Using the level of CA, the results thus support H1 under certain conditions; that is, only listed companies with 3 MAPRs are associated with higher audit quality when measured by the level of CA.

The results of the CA regression analysis are consistent with the main results of this thesis using DA as a measurement. The direction of the coefficients is similar, regardless of whether DA or CA are used. The comparison of the coefficients between DA and CA measurements are illustrated in Figure 5.2.

Figure 5.2 presents effects of different numbers of MAPRs associated with different levels of audit quality as measured by CA. Using CA as a quality measure supports the main findings of this study (when using the level of DA as an audit quality proxy).

Figure 5.2: Effect of different rotation numbers of MAPR on audit quality measured by CA that use 1 MAPR as a benchmark



5.5.2.3 The modified audit opinion (MAO) and going-concern opinion (GCO)

Some prior studies in the area of audit partner rotation use the outcomes of the audit (Francis, 2004), such as MAO (Firth et al., 2012; Salleh & Jasmani, 2014), and GCO (Carey & Simnett, 2006; Geiger & Raghunandan, 2002; Litt et al., 2014), as proxies for audit quality. The study by Francis (2004) describes that these reports are concentrated on listed companies experiencing financial distress or business restructuring. Also, Carey and Simnett (2006) and DeFond, Raghunandan, and Subramanyam (2002), point out that an audit partner who issues a GCO has overcome pressure from their client to instead issue an unqualified audit opinion. The lesser likelihood of issuing an MAO or GCO by an auditor indicates a decrease in audit quality (Firth et al., 2012; Knechel & Vanstraelen, 2007).

A very small number of listed companies receive an MAO or GCO in the Thai market during the observation period of this study. Only five percent of the sample received an MAO (21 firm-year observations), as presented in Appendix 11.

Further, less than four percent of the sample in this thesis received a GCO (15 firm-year observations), as presented in Appendix 12. Previous studies suggest that an audit partner

issues a GCO when "substantial doubt exists regarding a client's ability to continue as a going-concern" (Litt et al., 2014, p. 78), which is not the focus of this thesis. Therefore, the use of GCO and MAO as proxies for audit quality is deemed not to be relevant to provide strong evidence of the effects of MAPR on audit quality in the Thai market. These measures of audit quality are therefore excluded from the analysis in this thesis.

5.5.2.4 Abnormal working capital accruals (AWCA)

Following the study by Carey and Simnett (2006) in the Australian market, this thesis also considers other proxies of audit quality that are measured in listed companies' financial statements, such as abnormal working capital accruals. Carey and Simnett (2006) state that AWCA is a more powerful test to identify extreme management reporting decisions than total accruals (normal plus abnormal accruals) (Carey & Simnett, 2006; DeFond & Park, 2001). However, the explanatory power of the model using AWCA in this study, as an audit quality proxy is very low. An adjusted R^2 is less than 0.100 (untabulated). Since AWCA is based on the relationship between changes in current accounts and revenues (Carey & Simnett, 2006), listed companies having MAPR in the Thai market may have less discretion over AWCA. This thesis thus excludes AWCA as a measurement of audit quality.

Overall, this thesis has considered various alternative audit quality measurements. By considering the DA sign, the results show that only listed companies with 3 MAPRs, which have a positive DA, are associated with a higher audit quality. Therefore, these results support H1 but only under certain conditions. Similarly, MAPR is related to audit quality improvement, when audit quality is measured by the level of CA only for listed companies having 3 MAPRs. Almost all the findings to do with control variables support the results in Section 5.2.1 when DA is used as a measurement of audit quality. Other alternatives of audit quality measurement, such as MAO, GCO, and AWCA, have also been considered but due to the small number of observations using those measurements, there is a low explanatory power of the models using them. Therefore, they have been excluded. In conclusion, this thesis maintains that the level of DA as the main audit quality measurement is appropriate because of its better explanatory power and the significance in the empirical model.

The tests in Section 5.2 to 5.4 report no association between MAPR and higher audit quality in the Thai market. Even though other possible impacting factors are included in models tested subsequently, i.e. auditor attributes and FMAPR, MAPR does not appear to be a significant factor in increasing audit quality. However, the analyses of interaction effects of variables and other audit quality proxies, in Section 5.5, provide additional evidence of audit quality as a consequence of MAPR; that is, MAPR improves the audit quality of listed companies only under particular conditions.

5.6 Summary and conclusion

This chapter discusses the descriptive statistics of two sample groups: (1) samples of the MAPR regime; and (2) samples of the MAPR and VAPR regimes, including the correlations matrix analysis. The VIF is used to analyse multicollinearity problems. There is no indication of multicollinearity in the thesis.

The main objective of this thesis is to examine the effect of MAPR on audit quality in a developing market, Thailand. The MAPR requirement was introduced and imposed on the Thai market in 2006 with the aim of promoting greater auditor independence and enhancing audit quality. However, there are a limited number of prior studies that have investigated the effect of MAPR in the Thai setting.

Unlike prior studies in Thailand, and in other Asian regions, this thesis focuses on the effect of MAPR on audit quality by studying different numbers of MAPRs over 12 years. The results of this thesis do not provide strong evidence of an association between MAPR and audit quality proxied by the level of DA. The results report that a new lead audit partner following MAPR, who probably lacks client-specific knowledge, may not provide a higher audit quality in the transition year of an engagement. In order to gain knowledge of a client, an incoming lead audit partner needs a period of time in the role, as knowledge about a client is accumulated on a gradual basis. Further, improvement in client-specific knowledge and practices develops through actual audit experience, which is not immediately realised after FMAPR.

Further, the fresh perspective of a new audit partner seems to not improve audit quality. This could be due to the new lead audit partner's reliance on previous working papers, the use of existing audit team members, and the overly standardised audit programme. Also, the relationship between a new lead audit partner and other audit team members needs time to develop in terms of communication, which may not enhance the audit process and thus improve audit quality in the period following MAPR, but which could improve over time.

The effect of different rotation numbers of MAPR reveals that the positive conditions of contextual factors, such as economic situation, accounting environment and corporate governance, seem to influence the relationship between MAPR and audit quality in the Thai market.

In terms of control variables, the overall results highlight that SIZE, CFO, LOSS and LEV are all significant variables associated with audit quality measured by the level of DA in the Thai market; that is, a higher level of DA indicates that a lower audit quality is found in larger listed companies as they have more opportunities to manage their earnings through the level of DA. On the other hand, a higher audit quality is found in listed companies having higher CFO, reporting net loss and having high leverage. However, there is no relationship between audit quality and AGE, INDGROW and BIG4 in the Thai market.

Tests of other impacting factors are included in this thesis to observe audit quality as a consequence of MAPR, such as auditor attributes, and the first mandatory audit partner rotation (FMAPR) preceding voluntary rotation (VAPR). Results show that audit firm and audit partner attributes do not seem to have an effect on the level of DA in listed companies with MAPR. Further, there is no significant difference in the audit quality measured by the level of DA between FMAPR and VAPR of the same listed companies. The results of these analyses help substantiate the results of the main analysis; that is, the MAPR requirement does not improve audit quality in the Thai market even when considering audit firm and audit partner characteristics as variables in the models used in this thesis.

Additional analyses are also included in this thesis, using interaction effects of variables and the MAPR in combination with audit firm rotation (AFR). The results reveal that only listed companies with 3 MAPRs when audited by Big 4 audit firms have higher audit quality, and only larger-sized listed companies with 3 MAPRs have higher audit quality. These results suggest that MAPR in Thailand is related to a better audit quality only under certain conditions, such as the number of rotation times, audit firm sizes and listed company size. The results of the analysis of AFR are not reported in this thesis due to the small sample size when using that variable.

This thesis also employs alternative measurements of audit quality and uses them for sensitivity tests. Using the DA sign, only listed companies with 3 MAPRs, which have a positive DA, are associated with higher audit quality. It is possible that the increased intensity in limiting the level of DA+ by the new lead audit partner together with the improvement in preparation of higher quality financial statements based on the MAPR experience by listed companies having 3 MAPRs, leads to increase an in audit quality in the Thai market. Similarly, the results in this thesis suggest that the higher audit quality measured by the level of CA in listed companies having 3 MAPRs has a strong association with MAPR. Other alternative measurements, such as MAO, GCO, and AWCA, were excluded from the tests in this thesis due to the small sample size when it comes to those variables. These sensitivity tests confirm the notion that the MAPR requirement improves audit quality in the Thai market when listed companies experience multiple MAPRs.

In conclusion, based on the results in this thesis, it seems that the MAPR requirement has not led to an improvement in audit quality in the Thai market. This finding is consistent with prior studies in the same setting (Phadungdet, 2014; Thapayom, 2012). The results also support the findings of other Asian region studies, such as in Taiwan (Chi et al., 2009), as well as in international settings such as in the U.S. (Myers et al., 2003). This thesis is the first study that links audit quality and auditor attributes, and interaction effects in the tests of audit quality in a developing country. The results provide important evidence for the literature on audit quality and could be further tested in future studies in other settings. The next chapter provides the summary and conclusion for the whole thesis.

Chapter 6 Summary and conclusions

This chapter summarises the key findings of the thesis based on analysis and discussion in previous chapters and highlights the contributions of those findings to the literature and body of knowledge in mandatory auditor rotation. This chapter first outlines the overviews of the thesis including the aim, research question and hypotheses in Section 6.1. Section 6.2 presents a summary of key findings of the thesis and Section 6.3 discusses the contributions of this thesis. The limitations and suggestions for future research are presented in Section 6.4. Section 6.5 presents the overall summary and conclusion of the thesis.

6.1 Overview of the thesis

This thesis aims to investigate audit quality in the Thai capital market as a result of the mandatory audit partner rotation (MAPR) requirement. Thailand adopted and imposed the MAPR requirement in 2006 in order to conform with the requirements of the international ethical standards to improve the audit quality (FAP, 2013b).

Even though Thailand has not been colonised by any other country, the legal environment and system of Thailand are affected by neighbouring countries that have been dominated by Great Britain. Therefore, British Common Law from neighbouring countries is a significant legal system that influences the regulatory regime, as well as the economic and accounting regimes of Thailand.

In Thailand, the financial system is bank-oriented where commercial banks are likely to be major investors and financial resource funders rather than individual investors (Ball et al., 2003). Being influenced by institutional investors in the economy, Thailand has weaker investor protection regulations compared with more developed markets. Further, the Thai capital market is characterised by not being a high-quality capital market. It is perceived as having a weak regulatory environment and an unsophisticated financial

regime (Ball et al., 2003; Boonlert-U-Thai et al., 2006; Chayasombat, 2010; Iatridis, 2012). With these characteristics in the Thai economic and regulatory environment, the question is whether audit quality has improved (if at all) since the introduction of MAPR.

Only a few studies have been conducted to observe the effectiveness of MAPR on audit quality (Phadungdet, 2014; Pinijorachai, 2007; Thapayom, 2012) in Thailand. The results of these previous studies are inconclusive, are not recent and restricted in the sense that those studies did not include multiple rotation periods in their investigations. Some prior studies using Thai data report that the MAPR requirement significantly improves audit quality (Phadungdet, 2014), while some studies (Pinijorachai, 2007; Thapayom, 2012) find opposite results. Hence, previous findings are conflicting.

Even though prior studies indicate that MAPR could bring positive effects to audit quality, the resultant audit quality might also be influenced by other factors, for example, the environment of financial reporting and auditing, the auditors' knowledge, skills and experience, and communications among stakeholders (Francis, 2011; Kitiwong, 2014; Stakebrand, 2016). Following prior suggestions, the IAASB (2014) framework for audit quality highlights a wide range of factors that potentially impact on audit quality. Therefore, the IAASB (2014) framework is used to develop the conceptual framework and form the hypotheses of this thesis. The hypotheses are tested and are discussed in Chapter 3. They are:

H1: There is an improvement in audit quality as a consequence of multiple MAPRs.

H2: There is an improvement in audit quality depending on auditor attributes following MAPR.

H2a: There is an improvement in audit quality for listed companies having MAPR and being audited by Big 4 audit firms.

H2b: There is an improvement in audit quality for listed companies having MAPR when audited by an audit firm industry specialist.

H2c: There is an improvement in audit quality for listed companies having MAPR when audited by an audit partner industry specialist.

H2d: There is an improvement in audit quality for listed companies having MAPR when audited by an audit partner who is not busy.

H3: There is an improvement in audit quality for listed companies post the first mandatory partner rotation.

6.2 Summary of the key findings

Based on the hypotheses listed in Section 6.1 and tests performed in Chapter 5, the summary of the key findings is outlined below.

6.2.1 Insignificant audit quality improvement and the relationship between MAPR and audit quality

This thesis analyses the same Thai listed companies which experienced multiple MAPR from 2006 to 2017. The focus on multiple MAPR companies resulted in only 286 Thai listed companies with 417 firm-year observations being included in the final sample in this study. Consequently, the small sample in this thesis may not provide substantial evidence to draw a conclusion about the impact of the MAPR on audit quality on all listed companies in Thai market. The results in this thesis found no relationship between MAPR and audit quality for firms that have completed one, two or three MAPRs. The MAPR sample used in this thesis is comprised of listed companies with various lines of business and diversified business areas. Consequently and due to such diversity, it might not be easy for an incoming lead audit partner to acquire client-specific information in the transition year of MAPR (Chi et al., 2009; Gipper et al., 2018; Litt et al., 2014; Myers et al., 2003). In addition, constrained by time, it is possible that the audit lead partners in this study, following MAPR, lacked client specific and sufficient knowledge and were not able to effectively discover and report financial reporting misstatements. These factors might have impaired the audit quality, rather than improve it in the MAPR transition year. In that way the findings in this thesis support the evidence from studies in

other settings, such as Chi et al. (2009); Geiger and Raghunandan (2002); Gipper et al. (2018); Lennox et al. (2014); Myers et al. (2003). The knowledge accumulated by the outgoing audit partner who has experience in the client's processes and operations may not be immediately replaced by the incoming audit partner's experience and there is no expected improvement in independence (Arruñada & Paz-Ares, 1997; Chi et al., 2017; Johnson et al., 2002). This lack of client-specific knowledge is often presumed to further lead to higher information asymmetry between a new lead audit partner and management (Litt et al., 2014), giving management more opportunity to manage the company's earnings through a number of accounting treatments, such as the use of discretionary accruals. The misuse of discretionary accruals affects the audit quality (Bedard & Johnstone, 2010; Litt et al., 2014). Communicating effectively with the management of a new client is also presumed to be a challenge for a new lead audit partner (Bobek et al., 2012). The IAASB's (2014) audit quality framework suggests that auditor-client communication and interactions develop over time (Lennox et al., 2014; Myers et al., 2003), and thus, the auditor-client relationship and consequently, the audit quality (Bobek et al., 2012), is expected to take time to improve following MAPR. These explanations also provide justification for the findings in this thesis, that they do not confirm H1; that is, the MAPR requirement does not significantly improve audit quality in the Thai market.

The issue of time needed to improve audit quality after MAPR is also accentuated by a new lead audit partner experiencing a gradual learning curve to become fully familiar with their new client's businesses (Chi et al., 2009; Geiger & Raghunandan, 2002; Lanen et al., 2017; Litt et al., 2014; Stakebrand, 2016). This is more so in the Thai audit market. Almost all Thai listed companies with MAPR have at least two subsidiaries and affiliates, and the majority of them operate with foreign corporations. They are complex, which necessitates more time on the part of the new audit partner to become familiar with such companies. IAASB (2014) states that a lead audit partner needs sufficient time to understand the client's business in order to evaluate the risks of material misstatement in the client's financial reports (Chi et al., 2009; Geiger & Raghunandan, 2002; Lanen et al., 2017); thus in the Thai market, in the year of MAPR, audit quality does not improve due to the new auditor-client relationship. These findings also reject H1, that is, MAPR does not lead to an increase in audit quality.

An additional factor in the lack of the increase in audit quality following MAPR in Thailand is that a new lead audit partner following MAPR may be challenged in building rapport and effective communication within his or her new audit team. Effective communication among audit team members requires time to develop, is one of the critical factors in the audit process, and contributes to audit quality (IAASB, 2014). Further, the over-reliance on the incumbent audit team members who tend to rely heavily on previous audit working papers might also not lead to improvements in audit quality (Ballinger & Schoorman, 2007; Laomaneerattanaporn, 2015; Lee, 2015; Monroe & Hossain, 2013).

6.2.2 Control variables results

The results of the tests relating to control variables show that CFO, LOSS and LEV are associated with higher audit quality and their relationships are strong for Thai listed companies in the observation period in this study. The listed companies with MAPR that have a higher CFO tend to have good financial performance and make more conservative accounting choices. They are less likely to use aggressive accounting practices (Kim et al., 2003), by default have better quality financial statements, and therefore appear to receive higher audit quality when that quality is measured by the level of DA. When LOSS is considered, the new lead audit partner of listed companies having LOSS tends to be more cautious about income-increasing accruals (Pornupatham, 2006), hence the LOSS companies exhibit a lower level of DA and in that way receive higher audit quality. Finally, Thai listed companies that experience MAPR with high LEV tend to have their financial statements scrutinized closely by the lenders/banks and therefore do not tend to manage their results by excessive use of DA to alter or conceal their performance (Pornupatham, 2006). However, the listed companies' size (SIZE) is related to the higher level of DA which indicates the lower audit quality for such companies in this thesis. This is possible due to difficulty for the new lead audit partner following MAPR to fully understand large companies' accounting transactions and the businesses of large listed companies in the MAPR transition year, which is less likely to lead to an improvement in audit quality (Ahmad et al., 2014; Kiattikulwattana, 2014).

6.2.3 Auditor attributes and the first mandatory audit partner rotation (FMAPR)

This thesis also considers other variables that contribute to the improvement in audit quality following MAPR, such as audit firm and audit partner attributes. This thesis also considers the effects of FMAPR compared to the last preceding voluntary rotation (VAPR) for the same listed companies. In terms of audit firm attributes, this thesis investigates the effect of audit firm industry specialists (AFSPEC) and audit firm size (BIG4) on the audit quality of listed companies having MAPR. Audit partner attributes in this thesis are audit partner industry specialists (APSPEC) and audit partner busyness (BUSY). The results of tests for both audit firm and audit partner characteristics show that these variables do not contribute to improvements in audit quality in the Thai audit market. Similarly, the results of the FMAPR compared to VAPR of the same listed companies do not show effects on improvement in audit quality.

6.2.4 Additional analyses and sensitivity tests

The results of additional analyses in this thesis provide evidence for the impact of MAPR on audit quality measured by the level of DA. This thesis' contribution is the research into the effects of MAPR over a period of 12 years and three MAPR periods. When assessing the impact of multiple MAPRs on audit quality, the regression analysis in this thesis shows that only listed companies with 3 MAPRs, and which also have a positive DA, are associated with higher audit quality. The results also suggest that only listed companies with 3 MAPRs audited by Big 4 audit firms and only larger listed companies with 3 MAPRs have higher audit quality. This means that under certain conditions an incoming audit partner following MAPR can better detect income-increasing accruals in listed companies having 3 MAPRs, which is associated with positive audit quality, but only if the clients are large in size and audited by Big 4 audit firms.

Further, there is a strong relationship between audit quality measured by the level of CA and listed companies having 3 MAPRs. These results confirm the impact of multiple MAPRs on audit quality and also support H1 but under certain conditions.

When it comes to the tests of the effect of the simultaneous rotation of an audit partner and audit firm on the audit quality of Thai listed companies having MAPR, the small number of observations of such audit firm rotation (AFR) does not provide an adequate sample to test the effect of AFR on audit quality in the Thai market. It therefore seems that listed companies are likely to use the same audit firm when applying MAPR rather than change the firm and the lead audit partner at the same time.

The overall results in this thesis do lend support to a certain extent to the discussed factors in the IAASB (2014) audit quality framework. However, that framework can only provide broad guidelines for audit quality. It might not be fully suitable in the particular economic and regulatory context of a specific country such as Thailand. The overall findings of this thesis therefore, provide some new insights on the applicability of the IAASB (2014) framework and the MAPR requirement in a developing country. As such, the conceptual framework based on the IAASB's (2014) framework as used in this study can be further refined for application in developing countries. The refined framework as suggested in the thesis is shown in Figure 6.1.

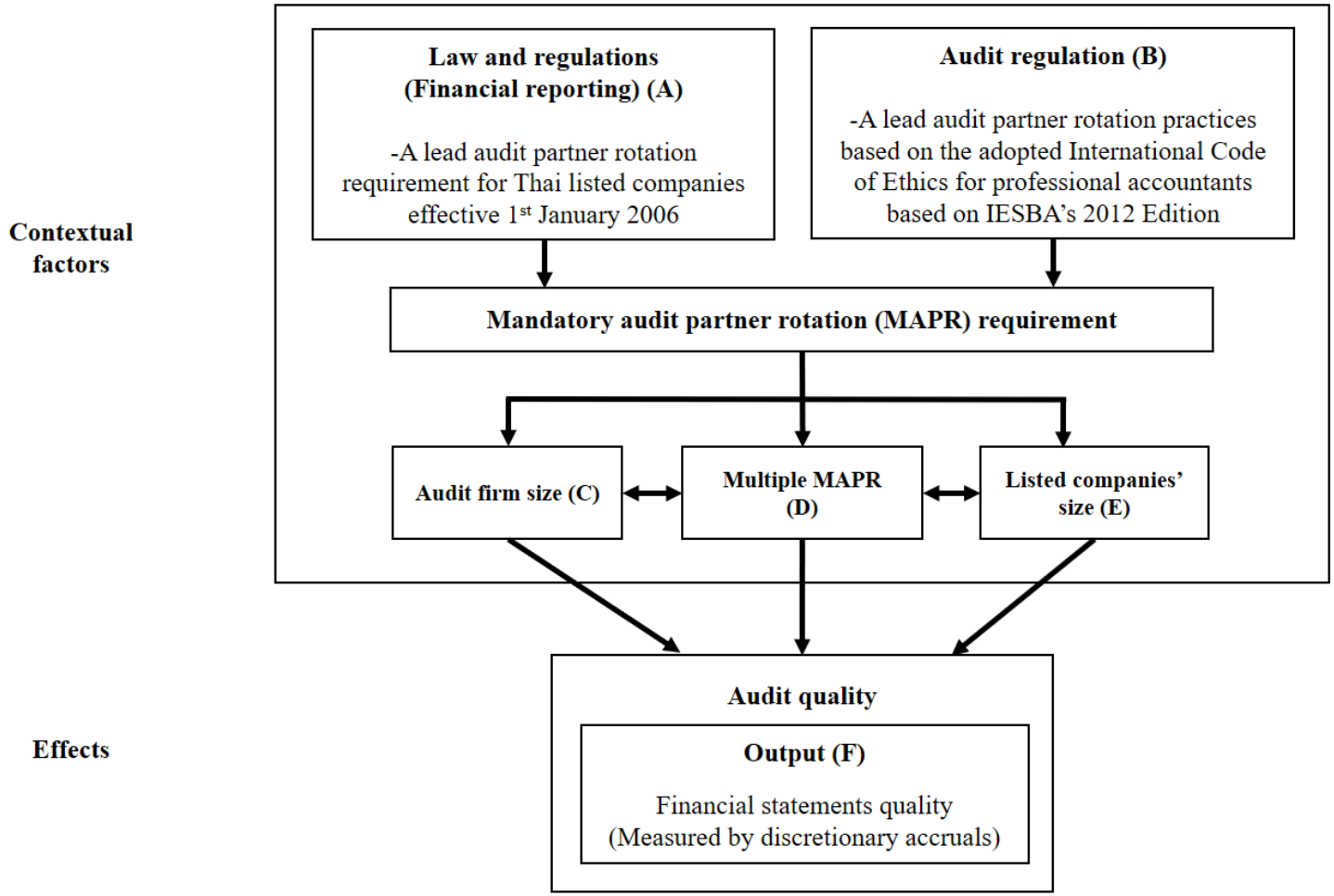


Figure 6.1: Audit quality framework for the MAPR requirement in the Thai market. Adapted from the IAASB's (2014) framework for audit quality.

As shown in Figure 6.1, two factors are the key elements of audit quality in the Thai MAPR setting: contextual factors and output factors. The MAPR requirement in the Thai capital market is referred to as the contextual factor that is required by the financial reporting laws and regulations (A) and audit regulations (B). With the required five-year audit partner rotation, there are multiple MAPRs (D) that the audit firms (C) and listed companies (E) have experienced in the Thai market under the 12-year observation period of this thesis. Under certain conditions, multiple MAPRs lead to an improvement in audit quality (F) (path MAPR → (D) → (F)). This is because an incoming audit partner is more cautious about the level of DA+ and CA. A more cautious audit approach together with the accumulated knowledge of the client provided by the audit firm partners through prior years' working papers can lead to higher audit quality.

This thesis found a relationship between audit quality measured by the level of DA and listed companies having 3 MAPRs audited by Big 4 audit firms (C) (path MAPR → ((D) ↔ (C)) → (F)). Under the interaction effects of multiple MAPRs and BIG4, the new lead audit partner who is a member of a Big 4 audit firm is likely to have better resources and firm procedures as a part of their audit methodology that can lead to higher audit quality. Also, audit quality in the Thai market is most likely to improve over time, which might require more than three maximum MAPRs.

Further, the interaction effects of multiple MAPRs and listed companies' size (E) are related to higher audit quality under the MAPR regime in the Thai setting (path MAPR → ((D) ↔ (E)) → (F)); that is, only larger listed companies with 2 to 3 MAPRs have higher audit quality because of the benefits of MAPR experience that is useful in preparing higher quality financial statements. In this way, there is the positive effect of the interaction of multiple MAPRs and listed companies' size on audit quality in the Thai market.

6.3 Contributions of this thesis

This thesis contributes to the literature on MAPR and audit quality in three ways. These contributions are discussed in sections 6.3.1 to 6.3.3. Section 6.3.1 discusses the contribution of this thesis regarding the audit quality and the audit quality framework in a developing country market. Section 6.3.2 discusses policy implications of this thesis' findings. The application of agency theory in the Thai MAPR context is discussed in Section 6.3.3.

6.3.1 Audit quality as a result of MAPR in a developing country audit market

This thesis provides a contribution to the knowledge on audit quality and provides additional evidence regarding audit quality in a developing country, Thailand. The 12-year observation period, from 2006 to 2017 used in this thesis, gives evidence about effects of the three periods of five years of a lead audit partner rotation. Most prior studies observe only one period of MAPR (Lennox et al., 2014; Phadungdet, 2014; Stewart et al., 2016; Thapayom, 2012). As this thesis includes a larger sample of listed companies with three maximum periods of MAPR, the results provide insights from a developing market about the relationship between multiple MAPRs and audit quality, especially so from a country known to have weaker regulatory enforcement (Ball et al., 2003; Chayasombat, 2010).

The secondary data of Thai listed companies across industries is analysed in this study. This thesis captures audit quality measured by the level of DA that is calculated by a cash flow statement approach, which is superior to the balance sheet approach (Hribar & Collins, 2002; Pornupatham, 2006). The model used in this thesis establishes the relationship between audit quality and a set of independent variables and the different numbers of MAPR. Unlike prior studies in the Thai market and other Asian countries, this thesis also includes other impacting factors that affect audit quality, for example, the interactions of variables, attributes of audit firms and audit partners, and AFR. In that way, this study and this thesis extends previous research on audit quality in the Asian

context. In addition, a number of control variables that are not previously included in prior Thai studies (such as net loss, listed companies' leverages, industries' growth and cash flow from operating activities) are added to the model in this thesis. By including these variables, the explanatory power of the present study is higher than prior studies on this topic in the Asian context. This thesis' models can be further developed for future research on other developing countries' audit markets and audit.

The thesis provides a longitudinal study of MAPR and audit quality over a 12-year period and covers in that period three mandatory audit partner rotations. The study in this thesis finds that MAPR requirement alone does not significantly improve audit quality, at least not in the Thai market. This is despite the incoming audit partner following MAPR being an industry specialist. This is largely due to the incoming partner needing time to acquire knowledge about the client's business. In addition, in this study, listed companies being audited by an audit firm industry specialist does not result in greater audit quality in the transition year of MAPR. The results in this thesis thus confirm that the introduction of MAPR to conform with the international standards requirements does not by itself increase audit quality in the Thai setting. It appears that in the Thai setting, audit quality takes time to improve. The effect of MAPR on audit quality is more evident for larger listed companies with Big 4 auditors and multiple MAPRs. This is due to Big 4 audit firms and larger listed companies having larger resources when acquiring knowledge based on their prior MAPR, and apply that knowledge in preparing and auditing higher quality financial reports, which is reflected in increased audit quality. It also seems from the results in this thesis that the higher audit quality under MAPR is likely to be a result of audit firms' and audited companies' accumulated knowledge over a period of time, rather than being a reflection of an individual audit partner's understanding of MAPR and audit processes.

6.3.2 Thai regulatory bodies and international regulators

The results in this thesis provides additional evidence about the effectiveness of MAPR on audit quality in the Thai market. This evidence is likely to be useful to regulators in Thailand and other emerging markets with similar characteristics and accounting environments to Thailand, in other Southeast Asian regions. Even though MAPR is expected to mitigate familiarity and self-interest threats, and also promote auditor independence, MAPR in itself does not positively increase audit quality. These results show that international ethical standards requirements might not be appropriate for every setting without considering the particular characteristics of the setting. In addition, the international ethical standards requirements may take a longer time to achieve expected results. Thailand's professional accounting body, the Federation of Accounting Professions (FAP), should review the effectiveness of international ethical standards adoption in their market which has different characteristics from developed countries' markets, such as the U.S. and Australia, by taking into consideration its own context so to ensure that the main aim is achieved within a short period of time.

The MAPR requirement was amended by the Securities and Exchange Committee of Thailand (SECT) in 2018. These amendments to MAPR for Thai listed companies are to do with changes from the requirement of rotation from previous five years of consecutive engagement by a partner to seven years of cumulative engagement by a partner before the rotation, including the cooling-off period of five cumulative years. These new requirements became effective from 1 January 2019. In this way, the change from a consecutive to cumulative basis for MAPR can be seen as a confirmation that that the previous five-year engagement limitation of a lead audit partner and mandatory rotation after five-year period does not positively impact on audit quality in Thailand. The new amendments to the MAPR requirement by SECT are in agreement with the results of this thesis that MAPR did not significantly increase audit quality of Thai listed companies in the period between 2006 to 2017, when mandatory rotation was based on the five-year engagement period.

The international regulators and the professional accounting bodies could use the results of this thesis to further understand various factors affecting the effective implementation of international standards in a developing country, factors such as particular developing country business practices, economic conditions, and the accounting environment.

6.3.3 Application of agency theory with MAPR in a developing country

The study in this thesis provides indirect evidence that other factors such as the lack of client-specific knowledge and the early year in establishing the auditor-client relationship by an incoming audit partner, all affect audit quality following MAPR. These factors lead to information asymmetries between an incoming audit partner and management in regard to important information about client's businesses. In the situation of information asymmetry, the role of auditors becomes weakened in reducing resolving the owner (principal) vs manager (agent) conflict, and the auditor is less likely to decrease the agency costs, especially in the transition year of MAPR. It appears, at least in this thesis, that there are more challenges for agency costs in developing countries.

The main goal of MAPR is to improve audit quality by ensuring that auditors remain objective as MAPR is meant to enhance auditors' independence. MAPR is based on the assumption that by rotating the lead audit partner, excessive familiarity between the auditor and their clients is reduced. However, in a developing country, such as Thailand, the success of MAPR also depends on the willingness of the rulers and the politicians of the country to fully embrace independence rules and commit to improvements in audit quality. Other factors such as auditor's attitudes and their interactions with the management also have an impact on the effectiveness of MAPR on audit quality. The application of international ethical and auditing standards without giving a consideration to the country-specific context has given rise to a great deal of debate about the actual effectiveness of internationally adopted standards and policies, such as MAPR. To that end, the results of this thesis are relevant to the debate. Perrow (1986) and Eisenhardt (1989) recommended the application of the agency structure to richer contexts that involve information asymmetry and self-interest. As such, using agency theory in this thesis within the Thai context provides a better understanding of the effectiveness of

MAPR and some factors affecting that effectiveness, within the agency framework (Eisenhardt, 1989).

Taken together, evidence from this thesis adds new insights regarding the impact of the MAPR requirement and the auditor's independence on audit quality in Thailand. The results of the effectiveness of MAPR give important evidence to regulators and professional accounting bodies in Thailand to assist them in their decision-making. The findings in this thesis are also of interest to regulators and professional bodies in other countries with similar regulative and legislative environments to Thailand's.

6.4 Limitations of this thesis and implications for future research

This thesis has three main limitations. First, the sample size of this thesis is small. Data is obtained from only 417 firm-year observations (286 listed companies) over the 12 years under observation. The results of this thesis may not be easily generalisable to other settings with significantly different environments, such as larger markets or more developed capital markets. The findings of this study may only be specific to the Thai market or a similar, small capital market in a developing country with similar characteristics.

Second, this thesis is conducted under an institutional setting with MAPR and voluntary audit firm rotation (AFR). Mandatory AFR is not required in the Thai market, thus, the results cannot be readily generalised to an institutional setting where both MAPR and mandatory AFR apply because such rotations may have different effects on auditor independence and audit quality (Cameran et al., 2016).

Finally, even though this thesis uses various audit quality measurements for robustness checks, the main results are based on the level of DA. The inference about the effectiveness of MAPR on audit quality depends on the ability of the accrual-based proxies calculated by the performance-match modified Jones model proposed by Kothari et al. (2005) to capture audit quality (Chi et al., 2009). The studies by Chi et al. (2009)

and Lee (2015), for example, claimed that DA are noisy in measuring earnings quality, when DA are used as an audit quality proxy. Also, DA being controlled by ROA might bias the results (Jackson, 2018) and reduce the power of the tests (Dechow, Ge, & Schrand, 2010; Jackson, 2018). The accuracy of inferences from this thesis about the impact of MAPR on audit quality may thus be confined by these limitations. However, the tests in this thesis also employ other audit quality proxies such as the DA sign, the current accruals (CA), a modified audit opinion (MAO) and a going-concern audit opinion (GCO) to strengthen the main results and reaffirm the further robustness of the results. Following those tests, DA appears to be the best measure of audit quality that is currently observable in research.

There are four possible ways that this study could be extended in observing the impact of MAPR on audit quality. First, other measurements of audit quality as a consequence of MAPR could be considered. This thesis employs financial statements quality measured by the level of DA and CA as audit quality proxies to examine the MAPR requirement in the Thai context and finds no significant results when it comes to the effect of MAPR on audit quality. A future study may also consider using economic incentives such as audit fees and non-audit fees to add different aspects and more evidence to MAPR research in the literature in this context. For example, in the Thai market context, a researcher may employ audit fees that are disclosed in companies' annual reports from 2012 as an audit quality proxy to explore the effectiveness of MAPR. Audit fees were not used in this thesis because the data on audit fees was not available for the entire observation period of this thesis.

Second, in order to extend the knowledge of audit quality, future research might need to consider other impacting factors that possibly drive audit quality in the market, for example, other attributes of the audit partner (Cameran et al., 2017), other attributes of the audit firms (Liu et al., 2017), corporate governance (Kitiwong, 2014), and the country's economic conditions (IAASB, 2014). Even though results of this thesis do not show the significant effects of some of those factors on audit quality, there are different measurements that could be explored. For example, future research may include auditor's educational background (Cameran et al., 2017), second-tier audit firms (Cassell, Giroux,

Myers, & Omer, 2013), and number of meetings by audit committees (Tangruenrat, 2013), as factors that potentially impact on audit quality.

Lastly, future research might need to compare audit quality between listed companies having a five consecutive year engagement limitation for a lead audit partner compared to the effects of a seven cumulative year engagement limitation for the key audit partner in the Thai market. The effects of that recent change on audit quality need to be further explored.

6.5 Summary and conclusion

This chapter summarises and concludes this thesis by providing a summary of the results and a discussion about the effects of MAPR on audit quality in the Thai audit market. The contributions of this thesis are also discussed in this chapter. This thesis has three main contributions: it adds to the literature on the impact of MAPR on audit quality, it provides important evidence on the effects of MAPR to Thai and international regulatory bodies, and it links the application of agency theory to MAPR. The limitations of this thesis and implications for future research are also discussed in this chapter.

The findings of this thesis suggest that the MAPR requirement does not significantly improve audit quality, at least not in a developing country, Thailand. This crucial insight and extended understanding that are derived from this thesis expand our understanding about some contextual factors that need to be considered before MAPR could have an impact on the audit quality in developing countries. As such, the MAPR requirement is not fit for all countries and requires serious consideration from local regulators as to how to successfully implement it.

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Appendices

Appendix 1: List of auditors approved by the Securities and Exchange Committee of Thailand (SECT) in 2017

No.	Audit firm	Audit partner name	CPA Registration Number
1	A.M.T. & ASSOCIATES	1. Mr. CHAIYUTH ANGSUWITHAYA 2. Mrs. NATSARAK SAROCHANUNJEEN 3. Miss DARANEE SOMKAMNERD 4. Miss JARUNEE NUAMMAE	3885 4563 5007 5596
2	ANS AUDIT COMPANY LIMITED	1. Mr. SATHIEN VONGSNAN 2. Mr. ATIPONG ATIPONGSALUL 3. Mr. VICHAI RUCHITANONT 4. Miss KULTIDA PASURAKUL 5. Miss PATCHAREE SIRIWONGSIN 6. Mr. YUTTAPONG CHUAMUANGPAN	3495 3500 4054 5946 9037 9445
3	AST MASTER COMPANY LIMITED	1. Mr. PRADIT RODLOYTUK 2. Miss NONGRAM LAOHAAREEDILOK	218 4334
4	ASV & ASSOCIATES COMPANY LIMITED	1. Mr. ANUSORN KIATGUNGWALGRI 2. Mrs. KWUNJAI KIATGUNGWALGRI	2109 5875
5	BAKER TILLY AUDIT AND ADVISORY SERVICES (THAILAND) COMPANY LIMITED	1. Miss WIMOLSRI JONGUDOMSOMBUT 2. Mr. APICHART SAYASIT 3. Miss WALEERAT AKKARASRISAWAD	3899 4229 4411
6	BPR AUDIT AND ADVISORY COMPANY LIMITED	1. Mr. BOONLERT KAEWPHANPURK 2. Miss RUNGTAWAN BUNSAKCHALERM 3. Miss PIYANUCH KASEMSUPAKORN	4165 6031 6303
7	BUNCHIKIJ COMPANY LIMITED	1. Mr. PORNCHAI KITTIPANYANGAM 2. Mrs. SUWANEE KITTIPANYANGAM 3. Mr. THANAKORN FAKFAIPOL 4 .Miss SUDAPORN TAWAPEE 5. Mr. THEWA DAMDAENG	2778 2899 4879 6862 10777
8	C&A AUDIT OFFICE COMPANY LIMITED	1. Miss JINTANA MAHAVANICH 2. Mrs. CHINTANA TECHAMONTRIKUL	4687 5131
9	CWWP COMPANY LIMITED	1. Miss WANRAYA PUTTASATIEAN 2. Mr. CHERDSAKUL ONMONGKOL	4387 7198

No.	Audit firm	Audit partner name	CPA Registration Number
		3. Miss WARAPORN INTARAPRASIT	7881
10	D I A INTERNATIONAL AUDITING COMPANY LIMITED	1. Mrs. SUVIMOL KRITTAYAKIERN 2. Miss SOMJINTANA PHOLHIRUNRAT 3. Mr. JOOMPOTH PRIRATANAKORN 4. Mr. NOPPAROEK PISSANUWONG 5. Miss SUPHAPHORN MANGJIT	2982 5599 7645 7764 8125
11	DELOITTE TOUCHE TOHMATSU JAIYOS AUDIT COMPANY LIMITED	1. Mr. SUPHAMIT TECHAMONTRIKUL 2. Mr. PERMSAK WONGPATCHARAPAKORN 3. Miss THANAWAN ANURATBODEE 4. Mr. NITI JUNGNITNIRUNDR 5. Miss WIMOLPORN BOONYUSTHIAN 6. Mr. MANOON MANUSOOK 7. Mr. CHAVALA TIENPASERTKIJ 8. Miss DUANGRUDEE CHOOCHART 9. Mr. CHOOPONG SURACHUTIKARN 10. Mr. KIATNIYOM KUNTISOOK 11. Miss PENSRI THAMVARODOM 12. Mrs. NISAKORN SONGMANEE 13. Miss JUNTIRA JUNTRACHAICHOAT 14. Mr. SUWATCHAI MEAKHAAMNOUYCHAI 15. Mr. YONGYUTH LERTSURAPIBUL 16. Mr. WONLOP VILAIVARAVIT 17. Mrs. WILASINEE KRISHNAMRA 18.Mr. NANTAWAT SUMRAUNHANT 19. Mr. MONGKOL SOMPHOL	3356 3427 2440 2809 4067 4292 4301 4315 4325 4800 4923 5035 6326 6638 6770 6797 7098 7731 8444
12	DHARMNITI AUDITING COMPANY LIMITED	1. Mr. PERADATE PONGSATHIANSAK 2. Mr. POJANA ASAWASONTICHAI 3. Mr. THANAWUT PIBOONSAWAT 4. Miss WANNISA NGAMBUATHONG 5. Miss SULALIT ARDSAWANG 6. Mr. SUWAT MANEEKANOKSAKUL 7. Miss SORAYA TINTASUWAN 8. Miss POTJANARAT SIRIPIPAT 9. Miss THANYAPORN TANGTHANOPAJAI 10. Miss ARISA CHUMWISUT 11. Miss ROONGNAPHA SAENGCHAN	4752 4891 6699 6838 7517 8134 8658 9012 9169 9393 10142
13	DR. VIRACH AND ASSOCIATES COMPANY	1. Mr. VIRACH APHIMETEETAMRONG 2. Mr. CHAIYAKORN AUNPITIPONGSA	1378 3196

No.	Audit firm	Audit partner name	CPA Registration Number
	LIMITED	3. Mr. APIRUK ATI-ANUWAT	5202
		4. Mr. PREECHA SUAN	6718
14	E Y OFFICE COMPANY LIMITED	1. Mr. SOPHON PERMSIRIVALLOP	3182
		2. Mr. NARONG PUNTAWONG	3315
		3. Miss THIPAWAN NANANUWAT	3459
		4. Miss RUNGNAPA LERTSUWANKUL	3516
		5. Miss RATANA JALA	3734
		6. Miss SIRAPORN OUAANUNKUN	3844
		7. Miss VISSUTA JARIYATHUNAKORN	3853
		8. Mr. SUPACHAI PHANYAWATTANO	3930
		9. Miss SUMALEE REEWARABANDITH	3970
		10. Mr. CHAYAPOL SUPPASEDTANON	3972
		11. Mrs. NOGLAK PUMNOI	4172
		12. Miss KAMONTIP LERTWITWORATEP	4377
		13. Mrs. SAIFON INKAEW	4434
		14. Mr. WICHART LOKATEKRAWEE	4451
		15. Mrs. GINGKARN ATSAWARANGSALIT	4496
		16. Miss SUPANNEE TRIYANANTAKUL	4498
		17. Miss SOMJAI KHUNAPASUT	4499
		18. Mr. TERMPHONG OPANAPHAN	4501
		19. Miss PIMJAI MANITKAJOHNKIT	4521
		20. Mrs. CHONLAROS SUNTIASVARAPORN	4523
		21. Miss WARAPORN PRAPASIRIKUL	4579
		22. Miss SIRIWAN SURATEPIN	4604
		23. Miss SATIDA RATANANURAK	4753
		24. Mrs. SARINDA HIRUNPRASURTWUTTI	4799
		25. Miss ORAWAN TECHAWATANASIRIKUL	4807
		26. Miss NARISSARA CHAISUWAN	4812
		27. Mrs. YUPPADEE SATCHAWANNAKUL	4819
		28. Miss PHUPHUN CHAROENSUK	4950
		29. Miss RACHADA YONGSAWADVANICH	4951
		30. Mr. KHITSADA LERDWANA	4958
		31. Miss SIRIKORN PLERNPISSIRI	5234
		32 Mrs. POONNARD PAOCHAROEN	5238
		33. Miss THANYALAK SUENITIKUL	5286
		34. Miss MANEE RATTANABUNNAKIT	5313
		35. Miss WANWILAI PHETSANG	5315
		36. Miss SIRIRAT SRICHAROENSUP	5419
		37. Miss WATOO KAYANKANNAVEE	5423
		38. Miss ROSAPORN DECHARKOM	5659
		39. Mr. NATTHAWUT SANTIPET	5730
		40. Miss PINPAKA AKARANUPHONG	5767

No.	Audit firm	Audit partner name	CPA Registration Number
		41. Mr. PREECHA ARUNNARA	4800
		42. Mr. CHATCHAI KASEMSRITHANAWAT	5813
		43. Miss SUMANA PUNPONGSANON	5872
		44. Miss KRONGKAEW LIMKITTIKUL	5874
		45. Miss SIRIWAN NITDAMRONG	5906
		46. Miss KOSUM CHA-EM	6011
		47. Miss VILAILAK LAOHASRISAKUL	6140
		48. Miss ISARAPORN WISUTTHIYAN	7480
15	GRANT THORNTON COMPANY LIMITED	1. Mr. SOMCKID TIATRAGUL	2785
		2. Miss KANYANAT SRIRATCHATCHAVAL	6549
		3. Mr. TEERASAK CHUASRISAKUL	6624
		4. Miss SANSANEE POOLSAWAT	6977
		5. Mr. NARIN CHURAMONGKOL	8593
16	KARIN AUDIT COMPANY LIMITED	1. Mr. JADESADA HUNGSAPRUEK	3759
		2. Mr. JIROTE SIRIROROTE	5113
		3. Miss KANNIKA WIPANURAT	7305
17	KPMG PHOOMCHAI AUDIT COMPANY LIMITED	1.Mr. WINID SILAMONGKOL	3378
		2. Mr. VAIROJ JINDAMANEEPITAK	3565
		3. Mrs. SIRIPEN SUKCHAROENYINGYONG	3636
		4. Miss BONGKOT AMSAGEAM	3684
		5. Miss ORAWAN SIRIRATTANAWONG	3757
		6. Mrs. WILAI BURANAKITTISOPON	3920
		7. Mr. CHAROEN PHOSAMRITLERT	4068
		8. Miss VANNAPORN JONGPERADECHANON	4098
		9. Mr. EKKASIT CHUTHAMSATID	4195
		10. Miss PANTIP GULSANTITHAMRONG	4208
		11. Mr. VEERACHAI RATANAJARATKUL	4323
		12. Miss SUREERAT THONGARUNSANG	4409
		13. Miss NITTAYA CHETCHOTIROS	4439
		14. Mr. SAKDA KAOTHANTHONG	4628
		15. Miss VIPAVAN PATTAVANVIVEK	4795
		16. Mr. THANIT OSATHALERT	5155
		17. Miss PORNTHIP RIMDUSIT	5565
		18. Miss MARISA THARATHORNBUNPAKUL	5752
		19. Miss ORAWAN CHUNHAKITPAISAN	6105
		20. Mrs. MUNCHUPA SINGSUKSAWAT	6112
		21. Mr. WAIYAWAT KORSAMARNCHAIYAKIJ	6333
		22. Mr. WATCHARA PATTARAPITAK	6669
		23. Mr. CHANCHAI SAKULKOEDSIN	6827
		24. Miss NAPAPORN SATHITTHAMMAPORN	7494

No.	Audit firm	Audit partner name	CPA Registration Number
		25. Miss NAWARAT NITIKEATIPONG	7789
		26. Mr. SUKIT VONGTHAVARAVAT	7816
		27. Mr. BUNYARIT THANORMCHAROEN	7900
		28. Miss THANYALUX KEADKAEW	8179
		29. Miss SIRINUCH VIMOLSATHIT	8413
		30. Miss VILAIVAN PHOLPRASERT	8420
		31. Mr. BANTHIT TANGPAKORN	4809
		32. Miss SUJITRA MASENA	8645
		33. Mrs. SASITHORN PONGADISAK	8802
		34. Mr. NATTHAPHONG TANTICHATTANON	8829
		35. Miss CHANARAT CHANWA	9052
		36. Miss NAREEWAN CHAIBANTAD	9219
		37. Mr. SUMATE JANGSAMSEE	9362
		38. Miss AORAPIN SINTHAWORNKUL	9441
		39. Mr. CHOKECHAI NGAMWUTIKUL	7928
		40. Miss PATAMAVAN VADHANAKUL	9832
		41. Miss DUSSANEE YIMSUWAN	10235
		42. Miss SAWITREE ONGKSIRIMEMONGKOL	10449
		43. Miss KANOKON PHOORIPHANYAWANIT	10512
		44. Mr. YOOTTAPONG SOONTALINKA	10604
18	M.R. & ASSOCIATES COMPANY LIMITED	1. Mr. PISIT CHIWARUANGROCH	2803
		2. Mr. METHEE RATANASRIMETHA	3425
		3. Miss VARAPORN VAREESAWEDSUVAN	5087
		4. Mr. AKADET PLIENSAKUL	5389
		5. Miss KORNTHIP WANICHWISEDKUL	6947
19	MAZARS COMPANY LIMITED	1. Mr. SOMPOP PHOLPRASARN	6941
		2. Miss WANNAWAT HEMACHAYART	7049
20	NPS SIAM AUDIT COMPANY LIMITED	1. Mr. NARONG LUKTHARN	4700
		2. Miss MALIWAN PHAHUWATTANAKORN	4701
		3. Mr. CHAIKRIT WARAKITJAPORN	7326
21	OFFICE OF PITISEVI COMPANY LIMITED	1. Miss CHAOVANA VIVATPANACHATI	4712
		2. Miss WANPEN UNRUAN	7750
		3. Miss PORNTIP AMORNCHAILERTPATTANA	9589
22	PRICEWATERHOUSECOOPERS ABAS COMPANY LIMITED	1. Mrs. UNAKORN PHRUITHITHADA	3257
		2. Mr. SOMCHAI JINNOVART	3271
		3. Mrs. NATTAPORN PHAN-UDOM	3430
		4. Mrs. ANOTHAI LEEKITWATTANA	3442

No.	Audit firm	Audit partner name	CPA Registration Number
		5. Mr. KAJORNKIET AROONPIRODJANAKUL	3445
		6. Mr. SUDWIN PANYAWONGKHANTI	3534
		7. Mr. CHANCHAI CHAIPRASIT	3760
		8. Mrs. ANUTAI POOMSURAKUL	3873
		9. Mr. VICHIEN KHINGMONTRI	3977
		10. Mr. PISIT THANGTANAGUL	4095
		11. Mr. PRASIT YUENGSRIKUL	4174
		12. Mr. PAIBOON TUNKOON	7298
		13. Miss VARAPORN VORATHITIKUL	4474
		14. Mr. CHAISIRI RUANGRITCHAI	4526
		15. Miss AMORNRAT PEARMPOONVATANASUK	4599
		16. Miss SUKHUMAPORN WONGARIYAPORN	4843
		17. Miss SAKUNA YAMSAKUL	4906
		18. Mr. KRIT CHATCHAVALWONG	5016
		19. Mr. PAISAN BOONSIRISUKAPONG	5216
		20. Miss NOPANUCH APICHATSATIEN	5266
		21. Mr. BOONLERT KAMOLCHANOKKUL	5339
		22. Miss BUSABA KUNSIRITHAM	5415
		23. Mr. BOONRUENG LERDWISESWIT	6552
		24. Mr. THEERAYUT PANYATHAWEESUB	6553
		25. Miss SINSIRI THANGSOMBAT	7352
		26. Mr. PONGTHAVEE RATANAKOSES	7795
		27. Mr. SA-NGA CHOKENITISAWAT	11251
23	PV AUDIT COMPANY LIMITED	1. Mr. THIRDTHONG THEPMONGKORN	3787
		2. Mr. PRAWIT VIWANTHANANUT	4917
		3. Miss CHOMPOONUCH SAETAE	8382
		4. Mr. UDOM THANURATPONG	8501
		5. Miss CHUTIMA WONGSARAPHANCHAI	9622
24	RSM AUDIT SERVICES (THAILAND) COMPANY LIMITED	1. Mr. SURACHAI DAMNOENWONG	4721
		2. Miss LEHUM CHINNAPAN	7306
		3. Miss SUNISA SEMA	7707
25	SAM NAK-NGAN A.M.C. COMPANY LIMITED	1. Mr. AMPOL CHAMNONGWAT	4663
		2. Miss PRAPHASRI LEELASUPHA	4664
		3. Mr. NARIS SAOWALAGSAKUL	5369
26	SIAM TRUTH AUDIT COMPANY LIMITED	1. Miss SIRADA JARUTAKANONT	6994
		2. Mr. BUNJONG PICHAYAPRASAT	7147
		3. Miss KHAYMANUNDT CHAICHUEN	8260
		4. Mr. KRAISIT SILAPAMONGKONKUL	9424

No.	Audit firm	Audit partner name	CPA Registration Number
27	SP AUDIT COMPANY LIMITED	1. Miss SUSAN EIAMVANICHA	4306
		2. Mr. SUCHART PANITCHAROEN	4475
		3. Miss CHUENTA CHOMMERN	7570
		4. Miss WANDEE EIAMVANICHA	8210
		5. Miss YUPHIN CHUMJAI	8622
		6. Mr. KIATISAK VANITHANONT	9922

Appendix 2: List of listed companies under MAPR used in thesis' sample

No.	Listed Company	Year of MAPR	Industry	Numbers of MAPR
1	Advanced Connection Corporation	2007	Consumer Products	1
2	Alucon	2013	Industrials	1
3	AP (Thailand)	2006	Property & Construction	1
4	Aqua	2017	Services	1
5	Areeya Property	2013	Property & Construction	1
6	Asia Aviation	2017	Services	1
7	Asia Hotel	2014	Services	1
8	Asia Metal	2013	Industrials	1
9	Asian Insulators	2009	Resources	1
10	Asian Seafoods Coldstorage	2006	Agro & Food Industry	1
11	Asset Bright	2015	Consumer Products	1
12	Bangkok Aviation Fuel Services	2014	Resources	1
13	Bangkok Chain Hospital	2015	Services	1
14	Bangkok Dusit Medical Services	2016	Services	1
15	Bangpakong Terminal	2015	Services	1
16	BEC World	2006	Services	1
17	Better World Green	2015	Services	1
18	Castle Peak Holdings	2006	Consumer Products	1
19	Central Pattana	2006	Property & Construction	1
20	Central Plaza Hotel	2006	Services	1
21	Charoong Thai Wire Cable	2013	Industrials	1
22	Chiang Mai Ram Medical Business	2015	Services	1
23	Chonburi Concrete Product	2015	Property & Construction	1
24	Christiani and Nielsen	2008	Property & Construction	1
25	City Sports and Recreation	2014	Services	1
26	City Steel	2013	Industrials	1
27	CP All	2011	Services	1
28	Crown Seal	2009	Industrials	1
29	CS Loxinfo	2013	Technology	1
30	CSP Steel Center	2013	Industrials	1
31	Dcon Products	2013	Property & Construction	1
32	Delta Electronics	2008	Technology	1
33	DTC Industries	2014	Consumer Products	1
34	Dynasty Ceramic	2009	Property & Construction	1
35	Eastern Printing	2006	Services	1
36	Eastern Star Real Estate	2017	Property & Construction	1
37	Eastern Water Resources Develo	2015	Resources	1
38	Electricity Generating	2017	Resources	1
39	Electronics Industry	2014	Technology	1
40	EMC	2006	Property & Construction	1
41	Esso Thailand	2015	Resources	1
42	Everland	2010	Property & Construction	1
43	Ferrum	2016	Technology	1
44	General Environmental Conserva	2014	Services	1
45	GFPT	2010	Agro & Food Industry	1
46	Global Connections	2014	Industrials	1
47	Glow Energy	2013	Resources	1
48	Goodyear (Thailand)	2009	Industrials	1
49	Gunkul Engineering	2017	Resources	1
50	Haad Thip	2013	Agro & Food Industry	1
51	Indorama Ventures	2016	Industrials	1
52	Inoue Rubber	2015	Industrials	1
53	Internet Thailand	2007	Technology	1
54	IRPC	2017	Resources	1
55	Jasmine Telecom Systems	2012	Technology	1

No.	Listed Company	Year of MAPR	Industry	Numbers of MAPR
56	Jay Mart	2015	Technology	1
57	Jutha Maritime	2007	Services	1
58	KCE Electronics	2017	Technology	1
59	Kiang Huat Sea Gull Trading Fr	2013	Agro & Food Industry	1
60	King Wai Group	2006	Property & Construction	1
61	Krungdhep Sophon	2006	Services	1
62	Laguna Resorts and Hotels	2011	Services	1
63	Lalin Property	2010	Property & Construction	1
64	Lee Feed Mill	2015	Agro & Food Industry	1
65	Lighting and Equipment	2011	Consumer Products	1
66	Lohakit Metal	2016	Industrials	1
67	Loxley	2013	Services	1
68	Luckytex (Thailand)	2007	Consumer Products	1
69	M Pictures Entertainment	2017	Services	1
70	Mahachai Hospital	2006	Services	1
71	Malee Group	2016	Agro & Food Industry	1
72	Master AD	2012	Services	1
73	Matching Maximize Solution	2017	Services	1
74	Matichon	2011	Services	1
75	MDX	2014	Resources	1
76	Metro Systems	2006	Technology	1
77	Mfec	2016	Technology	1
78	Navanakorn	2013	Property & Construction	1
79	NC Housing	2011	Property & Construction	1
80	New City (Bangkok)	2015	Consumer Products	1
81	Nonthavej Hospital	2006	Services	1
82	Oishi Group	2012	Agro & Food Industry	1
83	Pacific Pipe	2017	Industrials	1
84	PAE Thailand	2015	Property & Construction	1
85	Pan Asia Footwear	2011	Consumer Products	1
86	Pato Chemical Industry	2009	Industrials	1
87	People's Garment	2007	Consumer Products	1
88	Polyplex (Thailand)	2013	Industrials	1
89	Power Line Engineering	2014	Property & Construction	1
90	Prakit Holdings	2006	Services	1
91	Pre-Built	2013	Property & Construction	1
92	Preecha Group	2009	Property & Construction	1
93	Premier Marketing	2016	Agro & Food Industry	1
94	President Bakery	2008	Agro & Food Industry	1
95	Principal Capital	2011	Property & Construction	1
96	Prinsiri	2013	Property & Construction	1
97	Pruksa Real Estate	2016	Property & Construction	1
98	PTT Global Chemical	2016	Industrials	1
99	Pylon	2011	Property & Construction	1
100	Quality Construction Products	2017	Property & Construction	1
101	Regional Containers Lines	2007	Services	1
102	Rich Asia Corporation	2014	Industrials	1
103	Rockworth	2015	Consumer Products	1
104	Rojana Industrial Park	2011	Property & Construction	1
105	Royal Ceramic Industry	2013	Property & Construction	1
106	RPCG	2013	Resources	1
107	S&J International Enterprises	2007	Consumer Products	1
108	Sahamitr Pressure Container	2010	Industrials	1
109	Sahaviriya Steel Industries	2016	Industrials	1
110	Samchai Steel Industries	2013	Industrials	1
111	Samitivej	2016	Services	1
112	Sammakorn	2011	Property & Construction	1

No.	Listed Company	Year of MAPR	Industry	Numbers of MAPR
113	SC Asset	2013	Property & Construction	1
114	Seafco	2013	Property & Construction	1
115	Seafresh Industry	2007	Agro & Food Industry	1
116	Securities-Education	2016	Services	1
117	Shangri-La Hotel	2009	Services	1
118	Siam Future Development	2011	Property & Construction	1
119	Siam Global House	2017	Services	1
120	Siam Makro	2010	Services	1
121	Siam Steel International	2010	Consumer Products	1
122	Siamgas and Petrochemicals	2017	Resources	1
123	Sikarin	2009	Services	1
124	Singha Estate	2013	Property & Construction	1
125	Sino-Thai Engineering Construc	2008	Property & Construction	1
126	Somboon Advance Technology	2015	Industrials	1
127	Southern Concrete Pile	2008	Property & Construction	1
128	Srivichai Vejvivat	2017	Services	1
129	Superblock	2016	Resources	1
130	SVI	2008	Technology	1
131	Svoa	2016	Technology	1
132	Synnex (Thailand)	2016	Technology	1
133	T Krungthai Industries	2015	Industrials	1
134	Tata Steel (Thailand)	2008	Industrials	1
135	Team Precision	2006	Technology	1
136	Telekomunikasyon Technologies	2015	Services	1
137	Thai British Security Printing	2014	Services	1
138	Thai Carbon Black	2011	Industrials	1
139	Thai Factory Development	2006	Property & Construction	1
140	Thai OPP	2006	Industrials	1
141	Thai Optical Group	2015	Consumer Products	1
142	Thai Packaging and Printing	2006	Industrials	1
143	Thai Poly Acrylic	2010	Industrials	1
144	Thai Polycons	2017	Property & Construction	1
145	Thai Rung Union Car	2007	Industrials	1
146	Thai Stanley Electric	2013	Industrials	1
147	Thai Storage Battery	2009	Industrials	1
148	Thai Sugar Terminal	2015	Services	1
149	Thai Tap Water Supply	2015	Resources	1
150	Thai Toray Textile	2015	Consumer Products	1
151	Thailuxe Enterprises	2015	Agro & Food Industry	1
152	Thanulux	2007	Consumer Products	1
153	Thonburi Medical Centre	2006	Services	1
154	Tipco Asphalt	2010	Property & Construction	1
155	Tongkah Harbour	2017	Resources	1
156	TTCL	2014	Property & Construction	1
157	TWZ	2012	Technology	1
158	Tycoons Worldwide Group	2013	Industrials	1
159	Union Plastic	2006	Industrials	1
160	Union Textile Industries	2006	Consumer Products	1
161	United Paper	2013	Industrials	1
162	Univanich Palm Oil	2010	Agro & Food Industry	1
163	Univentures	2006	Property & Construction	1
164	Vanachai Group	2010	Property & Construction	1
165	Varopakorn	2011	Industrials	1
166	Vinythai	2012	Industrials	1
167	Wave Entertainment	2017	Services	1
168	Wiik and Hoeglund	2014	Property & Construction	1
169	Yong Thai	2011	Industrials	1

No.	Listed Company	Year of MAPR	Industry	Numbers of MAPR
170	Advanced Information Service	2006,2013	Technology	2
171	Advanced Information Technology	2011,2016	Technology	2
172	Aikchol Hospital	2008,2013	Services	2
173	Amarin Printing and Publishing	2010,2016	Services	2
174	Amata	2011,2016	Property & Construction	2
175	AQ Estate	2010,2016	Property & Construction	2
176	Asian Marine Services	2006,2012	Services	2
177	Bangkok Land	2011,2016	Property & Construction	2
178	Bangsaphan Barmill	2011,2016	Industrials	2
179	Banpu	2007,2014	Resources	2
180	Berli Jucker	2012,2017	Services	2
181	Boutique New City	2007,2012	Consumer Products	2
182	BTS Group Holdings	2009,2017	Services	2
183	Bumrungrad Hospital	2008,2016	Services	2
184	Cal-Comp Electronics (Thailand	2006,2013	Technology	2
185	Chai Watana Tannery	2006,2013	Industrials	2
186	Charn Issara Development	2011,2016	Property & Construction	2
187	Charoen Pokphand Foods	2012,2017	Agro & Food Industry	2
188	Chiangmai Frozen Foods	2006,2011	Agro & Food Industry	2
189	Chumporn Palm Oil Industry	2006,2013	Agro & Food Industry	2
190	Country Group Development	2006,2012	Property & Construction	2
191	Dusit Thani	2007,2014	Services	2
192	Eason Paint	2011,2016	Industrials	2
193	Erawan Group	2006,2015	Services	2
194	Fancy Wood Industries	2012,2017	Consumer Products	2
195	Far East DDB	2008,2013	Services	2
196	Furukawa Metal (Thailand)	2006,2016	Industrials	2
197	General Engineering	2007,2017	Property & Construction	2
198	GMM Grammy	2006,2011	Services	2
199	Grand Canal Land	2006,2017	Property & Construction	2
200	Grande Asset Hotels and Proper	2011,2016	Services	2
201	Hana Microelectronics	2008,2013	Technology	2
202	Home Product Center	2006,2015	Services	2
203	Interlink Communication	2010,2015	Technology	2
204	Intouch Holdings	2006,2013	Technology	2
205	Italian-Thai Development	2006,2012	Property & Construction	2
206	Jasmine International	2006,2012	Technology	2
207	Kang Yong Electric	2007,2014	Consumer Products	2
208	Karmarts	2006,2012	Services	2
209	Khon Kaen Sugar	2010,2016	Agro & Food Industry	2
210	Kulthorn Kirby	2008,2015	Industrials	2
211	Land and Houses	2006,2011	Property & Construction	2
212	Lanna Resources	2008,2013	Resources	2
213	LPN Development	2009,2017	Property & Construction	2
214	Major Cineplex Group	2011,2016	Services	2
215	Mandarin Hotel	2006,2011	Services	2
216	Minor International	2007,2012	Agro & Food Industry	2
217	Modernform Group	2006,2013	Consumer Products	2
218	Nippon Pack	2010,2015	Industrials	2
219	OCC	2007,2016	Consumer Products	2
220	Ocean Glass	2006,2012	Consumer Products	2
221	Ohtl	2009,2014	Services	2
222	Padaeng Industry	2010,2015	Resources	2
223	Patkol	2011,2016	Industrials	2
224	Pranda Jewelry	2008,2015	Consumer Products	2
225	Precious Shipping	2008,2015	Services	2
226	Property Perfect	2008,2013	Property & Construction	2

No.	Listed Company	Year of MAPR	Industry	Numbers of MAPR
227	Raimon Land	2008,2016	Property & Construction	2
228	Ramkhamhaeng Hospital	2010,2015	Services	2
229	Ratchaburi Electricity	2009,2014	Resources	2
230	Robinson Department Store	2014	Services	2
231	Royal Orchid Hotel (Thailand)	2008,2015	Services	2
232	S Khonkaen Foods	2006,2013	Agro & Food Industry	2
233	Saha Pathana Inter-Holding	2007,2012	Services	2
234	Sahamit Machinery	2011,2016	Industrials	2
235	Samart	2006,2011	Technology	2
236	Samart Telcoms	2006,2011	Technology	2
237	Sansiri	2006,2011	Property & Construction	2
238	Sermsuk	2006,2012	Agro & Food Industry	2
239	Siam Cement	2009,2014	Property & Construction	2
240	Siam City Cement	2012,2017	Property & Construction	2
241	Siam Pan Group	2010,2015	Industrials	2
242	Siam Steel Service Centre	2010,2017	Industrials	2
243	Singer Thailand	2009,2014	Services	2
244	SIS Distribution (Thailand)	2010,2017	Technology	2
245	SNC Former	2011,2017	Industrials	2
246	Sri Trang Agro-Industry	2006,2015	Agro & Food Industry	2
247	Standard and Poor's Syndicate	2009,2014	Agro & Food Industry	2
248	Sub Sri Thai	2011,2016	Agro & Food Industry	2
249	Supalai	2009,2014	Property & Construction	2
250	Surapon Foods	2006,2014	Agro & Food Industry	2
251	Susco	2006,2011	Resources	2
252	Thai Central Chemical	2006,2015	Industrials	2
253	Thai Metal Trade	2012,2017	Industrials	2
254	Thai Rayon	2012,2017	Consumer Products	2
255	Thai Textile	2007,2012	Consumer Products	2
256	Thai Vegetable Oil	2008,2016	Agro & Food Industry	2
257	Thai Wire Products	2008,2016	Industrials	2
258	Thaicom	2007,2013	Technology	2
259	Thai-German Ceramic	2006,2014	Property & Construction	2
260	Thaitheparos	2010,2015	Agro & Food Industry	2
261	Thantawan Industry	2010,2015	Industrials	2
262	Thoresen Thai Agency	2007,2013	Services	2
263	Ticon Industrial Connection	2009,2014	Property & Construction	2
264	TPI Polene	2006,2014	Property & Construction	2
265	Tropical Canning	2006,2013	Agro & Food Industry	2
266	True Corporation	2007,2017	Technology	2
267	Union Mosaic	2010,2015	Property & Construction	2
268	Union Pioneer Fabric	2006,2011	Consumer Products	2
269	United Palm Oil Industry	2006,2011	Agro & Food Industry	2
270	Vibhavadi Medical	2011,2017	Services	2
271	White Group	2009,2015	Industrials	2
272	CH Karnchang	2006,2011, 2016	Property & Construction	3
273	ICC International	2007,2012, 2017	Consumer Products	3
274	Jack Chia Industries	2007,2012, 2017	Consumer Products	3
275	MK Real Estate Development	2006,2011,2016	Property & Construction	3
276	Muramoto Electron	2006,2011, 2016	Technology	3
277	Nawarat Patanakarn	2006,2011, 2016	Property & Construction	3
278	Noble Development	2006,2011, 2016	Property & Construction	3
279	Post Publishing	2006,2011, 2016	Services	3
280	Premier Technology	2006,2011, 2016	Technology	3
281	Saha Pathanapibul	2007,2012, 2017	Services	3
282	Saha-Union	2006,2011, 2016	Consumer Products	3
283	Srithai Superware	2006,2011, 2016	Industrials	3

No.	Listed Company	Year of MAPR	Industry	Numbers of MAPR
284	Thai Wacoal	2006,2011, 2016	Consumer Products	3
285	Thailand Carpet Manufacturing	2006,2011, 2016	Property & Construction	3
286	Thailand Iron Works	2007,2012, 2017	Industrials	3

Appendix 3: List of listed companies under MAPR and VAPR used as thesis' sample

No.	Listed Company	Year of VAPR	Year of MAPR	Industry
1	Aikchol Hospital	2003	2008	Services
2	Amarin Printing and Publishing	2005	2010	Services
3	AQ Estate	2005	2010	Property & Construction
4	Banpu	2002	2007	Resources
5	Boutique New City	2002	2007	Consumer Products
6	BTS Group Holdings	2004	2009	Services
7	Bumrungrad Hospital	2003	2008	Services
8	Central Pattana	2001	2006	Property & Construction
9	Central Plaza Hotel	2001	2006	Services
10	Christiani and Nielsen	2003	2008	Property & Construction
11	Country Group Development	2001	2006	Property & Construction
12	Crown Seal	2004	2009	Industrials
13	Delta Electronics	2003	2008	Technology
14	Dusit Thani	2002	2007	Services
15	Dynasty Ceramic	2004	2009	Property & Construction
16	Everland	2005	2010	Property & Construction
17	Far East DDB	2003	2008	Services
18	General Engineering	2002	2007	Property & Construction
19	GFPT	2005	2010	Agro & Food Industry
20	Goodyear (Thailand)	2004	2009	Industrials
21	Grand Canal Land	2001	2006	Property & Construction
22	Hana Microelectronics	2003	2008	Technology
23	ICC International	2002	2007	Consumer Products
24	Interlink Communication	2005	2010	Technology
25	Internet Thailand	2002	2007	Technology
26	Jack Chia Industries	2002	2007	Consumer Products
27	Jutha Maritime	2002	2007	Services
28	Khon Kaen Sugar	2005	2010	Agro & Food Industry
29	Kulthorn Kirby	2003	2008	Industrials
30	Lalin Property	2005	2010	Property & Construction
31	Lanna Resources	2003	2008	Resources
32	LPN Development	2004	2009	Property & Construction
33	Mahachai Hospital	2001	2006	Services
34	Metro Systems	2001	2006	Technology
35	Nippon Pack	2005	2010	Industrials
36	Noble Development	2001	2006	Property & Construction
37	OCC	2002	2007	Consumer Products
38	Ohtl	2004	2009	Services
39	Padaeng Industry	2005	2010	Resources
40	Pato Chemical Industry	2004	2009	Industrials
41	People's Garment	2002	2007	Consumer Products
42	Prakit Holdings	2001	2006	Services
43	Pranda Jewelry	2003	2008	Consumer Products
44	Precious Shipping	2003	2008	Services
45	Preecha Group	2004	2009	Property & Construction
46	President Bakery	2003	2008	Agro & Food Industry
47	Property Perfect	2003	2008	Property & Construction
48	Raimon Land	2003	2008	Property & Construction
49	Ramkhamhaeng Hospital	2005	2010	Services
50	Ratchaburi Electricity	2004	2009	Resources
51	Regional Containers Lines	2002	2007	Services
52	Robinson Department Store	2001	2006	Services
53	Royal Orchid Hotel (Thailand)	2003	2008	Services
54	S&J International Enterprises	2002	2007	Consumer Products
55	Saha Pathana Inter-Holding	2002	2007	Services
56	Saha Pathanapibul	2002	2007	Services

No.	Listed Company	Year of VAPR	Year of MAPR	Industry
57	Sahamitr Pressure Container	2005	2010	Industrials
58	Seafresh Industry	2002	2007	Agro & Food Industry
59	Shangri-La Hotel	2004	2009	Services
60	Siam Cement	2004	2009	Property & Construction
61	Siam Makro	2005	2010	Services
62	Siam Pan Group	2005	2010	Industrials
63	Siam Steel International	2005	2010	Consumer Products
64	Siam Steel Service Centre	2005	2010	Industrials
65	Sikarin	2004	2009	Services
66	Singer Thailand	2004	2009	Services
67	Sino-Thai Engineering Construction	2003	2008	Property & Construction
68	SIS Distribution (Thailand)	2005	2010	Technology
69	Southern Concrete Pile	2003	2008	Property & Construction
70	Standard and Poor's Syndicate	2004	2009	Agro & Food Industry
71	Supalai	2004	2009	Property & Construction
72	Tata Steel (Thailand)	2003	2008	Industrials
73	Thai Poly Acrylic	2005	2010	Industrials
74	Thai Rung Union Car	2002	2007	Industrials
75	Thai Storage Battery	2004	2009	Industrials
76	Thai Textile	2002	2007	Consumer Products
77	Thai Vegetable Oil	2003	2008	Agro & Food Industry
78	Thai Wire Products	2003	2008	Industrials
79	Thaicom	2002	2007	Technology
80	Thaitheparos	2005	2010	Agro & Food Industry
81	Thantawan Industry	2005	2010	Industrials
82	Thanulux	2002	2007	Consumer Products
83	Thonburi Medical Centre	2001	2006	Services
84	Ticon Industrial Connection		2009	Property & Construction
85	Tipco Asphalt	2005	2010	Property & Construction
86	Tropical Canning	2001	2006	Agro & Food Industry
87	True Corporation	2002	2007	Technology
88	Union Mosaic	2005	2010	Property & Construction
89	Univanich Palm Oil	2005	2010	Agro & Food Industry
90	Vanachai Group	2005	2010	Property & Construction
91	White Group	2004	2009	Industrials

Appendix 4: Test for multicollinearity: Variance inflation factors (VIF) for samples of MAPR regime

Variables	Descriptions	1 MAPR			2 MAPR			3 MAPR		
		Model (4)	Model (6)	Model (7)	Model (4)	Model (6)	Model (7)	Model (4)	Model (6)	Model (7)
Test variables										
1 MAPR	MAPR time	1.1699	1.1689	1.1828						
2 MAPR	MAPR times				1.0737	1.0706	1.0703			
3 MAPR	MAPR times							1.1129	1.1638	1.1029
BIG4	Audit firm size	2.0932	1.2165	1.2066	2.0815	1.2065	1.1980	2.1210	1.2074	1.2084
AFSPEC	Audit firm industry specialist	2.1391			2.1450			2.1653		
APSPEC	Audit partner industry specialist	1.2236			1.2238			1.2228		
BUSY	Audit partner busyness	1.1292			1.1293			1.1294		
Additional variables										
1 MAPR*BIG4	Interaction of MAPR and audit firm size		1.0476							
2 MAPR*BIG4	Interaction of MAPR and audit firm size					1.0466				
3 MAPR*BIG4	Interaction of MAPR and audit firm size								1.0740	
1 MAPR*SIZE	Interaction of MAPR and listed companies' size			1.0268						
2 MAPR*SIZE	Interaction of MAPR and listed companies' size						1.0135			
3 MAPR*SIZE	Interaction of MAPR and listed companies' size									1.0179

Appendix 4: Test for multicollinearity: Variance inflation factors (VIF) for samples of MAPR regime (Cont.)

Variables	Descriptions	1 MAPR			2 MAPR			3 MAPR		
		Model (4)	Model (6)	Model (7)	Model (4)	Model (6)	Model (7)	Model (4)	Model (6)	Model (7)
Control variables										
AGE	Listed company's age	1.2164	1.2082	1.2250	1.1245	1.1165	1.1224	1.1744	1.1774	1.0179
SIZE	Listed company's size	1.5704	1.4340	1.4361	1.5788	1.4399	1.4463	1.5554	1.4222	1.1638
INDGROW	Industry growth	1.0473	1.0495	1.0472	1.0401	1.0452	1.0404	1.0255	1.0259	1.4214
CFO	Cash flow from the operating activities	1.2607	1.2501	1.2505	1.2708	1.2610	1.2594	1.2825	1.2708	1.0273
LOSS	Net income of the listed company	1.1861	1.2087	1.1836	1.1909	1.2149	1.1881	1.1950	1.1926	1.2709
LEV	Listed company's leverages	1.3735	1.3701	1.3562	1.3735	1.3674	1.3558	1.3735	1.3562	1.1917

Appendix 5: Regression of effect of MAPR on audit quality measured by DA while considering auditor attributes

Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0057					
		(-0.9944)					
2 MAPR	-			0.0084			
				(1.5237)			
3 MAPR	-					-0.0091	
						(-1.0254)	
Audit firms' attributes							
BIG4	-	0.0031		0.0039		0.0048	
		(0.3949)		(0.4925)		(0.6077)	
AFSPEC	-	-0.0050		-0.0058		-0.0060	
		(-0.6625)		(-0.7620)		(-0.7864)	
Audit partners' attributes							
APSPEC	-	0.0031		0.0033		0.0029	
		(0.3024)		(0.3234)		(0.2844)	
BUSY	+	0.0011		0.0011		0.0011	
		(0.2662)		(0.2789)		(0.2805)	
Control variables							
AGE	-	-0.0003		-0.0003		-0.0001	
		(-0.7741)		(-0.7149)		(-0.2188)	
SIZE	+	0.0053	**	0.0050	**	0.0054	**
		(2.2327)		(2.1343)		(2.3032)	
INDGROW	+	-0.0409		-0.0422		-0.0359	
		(-1.4327)		(-1.4836)		(-1.2715)	
CFO	-	-0.6610	***	-0.6648	***	-0.6646	***
		(-22.8164)		(-22.8966)		(-22.7477)	
LOSS	-	-0.0575	***	-0.0582	***	-0.0582	***
		(-7.1332)		(-7.2204)		(-7.1844)	
LEV	+	-0.0483	***	-0.0482	***	-0.0482	***
		(-3.1731)		(-3.1726)		(-3.1702)	
Intercept	+/-	0.0696		0.0668		0.0569	
		(1.6010)		(1.5891)		(1.3664)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.569		0.571		0.569	
F-value		51.012	***	51.327	***	51.026	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Appendix 6: Regression of effects of the first mandatory audit partner rotation (FMAPR) preceding voluntary rotation (VAPR)

Variables	Expected sign	**FMAPR** Coefficient (t-statistic)	
Test variables			
FMAPR	-	-0.0089	
		(-0.7512)	
Control variables			
BIG4	-	0.0053	
		(0.4688)	
AGE	-	0.0012	
		(1.3144)	
SIZE	+	0.0090	*
		(1.8369)	
INDGROW	+	-0.0446	
		(-1.2344)	
CFO	-	-0.6084	***
		(-10.4514)	
LOSS	-	-0.0477	***
		(-2.7384)	
LEV	+	-0.0696	***
		(-2.7383)	
Intercept	+/-	0.0181	
		(0.2631)	
Industry		Yes	
Years		Yes	
Adj. R^2		0.386	
F-value		15.132	***
Observations		181	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Appendix 7: Regression of effect of MAPR on audit quality measured by DA while considering the interaction of MAPR*BIG4

Variables	Expected sign	1 MAPR Coefficient (t-statistic)		2 MAPR Coefficient (t-statistic)		3 MAPR Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0057					
		(-0.9984)					
2 MAPR	-			0.0080			
				(1.5016)			
3 MAPR	-					-0.0041	
						(-0.4621)	
MAPR*BIG4	+/-	0.0003		0.0029		-0.0056	*
		(0.1056)		(1.1042)		(-1.9650)	
Control variables							
BIG4	-	-0.0002		0.0007		0.0004	
		(-0.0302)		(0.1155)		(0.0636)	
AGE	-	-0.0003		-0.0003		-0.0002	
		(-0.7994)		(-0.7157)		(-0.4744)	
SIZE	+	0.0054	**	0.0052	**	0.0053	**
		(2.3942)		(2.3214)		(2.3883)	
INDGROW	+	-0.0413		-0.0400		-0.0349	
		(-1.4459)		(-1.4076)		(-1.2410)	
CFO	-	-0.6597	***	-0.6645	***	-0.6638	***
		(-22.9113)		(-23.0487)		(-22.9686)	
LOSS	-	-0.0575	***	-0.0567	***	-0.0575	***
		(-7.0780)		(-6.9847)		(-7.1569)	
LEV	+	-0.0482	***	-0.0499	***	-0.0480	***
		(-3.1820)		(-3.3064)		(-3.1945)	
Intercept		0.0701	*	0.0638		0.0600	
		(1.6706)		(1.5032)		(1.5830)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.573		0.574		0.575	
F-value		62.531	***	63.202	***	63.524	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Appendix 8: Regression of effect of MAPR on audit quality measured by DA while considering the interaction of MAPR*SIZE

Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0047					
		(-0.8154)					
2 MAPR	-			0.0082			
				(1.5237)			
3 MAPR	-					-0.0068	
						(-0.7814)	
MAPR*SIZE	+/-	0.0045	*	-0.0001		-0.0081	***
		(1.6612)		(-0.0556)		(-2.8334)	
Control variables							
BIG4	+/-	-0.0004		0.0001		0.0000	
		(-0.0717)		(0.0209)		(0.0025)	
AGE	-	-0.0002		-0.0003		-0.0001	
		(-0.5907)		(-0.7252)		(-0.2280)	
SIZE	+	0.0056	**	0.0052	**	0.0053	**
		(2.4963)		(2.3049)		(2.3806)	
INDGROW	+	-0.0406		-0.0422		-0.0398	
		(-1.4279)		(-1.4864)		(-1.4223)	
CFO	-	-0.6608	***	-0.6633	***	-0.6642	***
		(-23.0225)		(-22.9893)		(-23.0992)	
LOSS	-	-0.0576	***	-0.0581	***	-0.0579	***
		(-7.1854)		(-7.2197)		(-7.2420)	
LEV	+	-0.0488	***	-0.0484	***	-0.0499	***
		(-3.2477)		(-3.2134)		(-3.3386)	
Intercept	+/-	0.0661		0.0665		0.0652	
		(1.5831)		(1.6428)		(1.6404)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.574		0.572		0.579	
F-value		63.259	***	62.879	***	64.627	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Appendix 9: Regression of the DA signs (Positive DA and Negative DA)

Variables	sign	1 MAPR Coef. (t-stat)		2 MAPR Coef. (t-stat)		3 MAPR Coef. (t-stat)		1 MAPR Coef. (t-stat)		2 MAPR Coef. (t-stat))		3 MAPR Coef. (t-stat)	
		Positive DA (DA+)						Negative DA (DA-)					
Test variables													
1 MAPR	-	0.0002						-0.0034					
		(0.0265)						(-0.5236)					
2 MAPR	-			0.0073						0.0015			
				(1.3186)						(0.2353)			
3 MAPR	-					-0.0164	**					0.0056	
						(-2.0038)						(0.4858)	
Control variables													
BIG4	-	0.0078		0.0073		0.0079		-0.0085		-0.0082		-0.0089	
		(1.2527)		(1.1832)		(0.1994)		(-1.2207)		(-1.1711)		(-1.2488)	
AGE	-	-0.0004		-0.0005		-0.0002		0.00005		0.0001		0.0001	
		(-1.0677)		(-1.1853)		(-0.5450)		(0.1087)		(0.2434)		(0.2038)	
SIZE	+	0.0004		0.0001		0.0002		0.0076	***	0.0077	***	0.0079	***
		(0.1695)		(0.0233)		(0.1080)		(2.9339)		(2.9375)		(3.0396)	
INDGROW	+	0.0367		0.0330		0.0396		-0.0875	***	-0.0860	***	-0.0848	***
		(1.1574)		(1.0484)		(1.2706)		(-2.7931)		(-2.7465)		(-2.7438)	
CFO	-	-0.4241	***	-0.4280	***	-0.4317	***	-0.3365	***	-0.3363	***	-0.3325	***
		(-11.4096)		(-11.5308)		(-11.6731)		(-7.9191)		(-7.8649)		(-7.7836)	
LOSS	-	-0.0455	***	-0.0456	***	-0.0463	***	-0.0286	***	-0.0286	***	-0.0277	***
		(-5.0914)		(-5.1246)		(-5.2294)		(-3.0523)		(-3.0308)		(-2.9329)	
LEV	+	-0.0235		-0.0233		-0.0245		-0.0270		-0.0268		-0.0274	
		(-1.3726)		(-1.3677)		(-1.4455)		(-1.5993)		(-1.5828)		(-1.6189)	
Intercept		0.0494		0.0550		0.0470		0.0083		0.0024		-0.0006	
		(1.1119)		(0.2026)		(1.1035)		(1.1729)		(0.0518)		(-0.0133)	
Industry		Yes		Yes		Yes		Yes		Yes		Yes	
Years		Yes		Yes		Yes		Yes		Yes		Yes	
Adj. R^2		0.423		0.429		0.435		0.263		0.263		0.263	
F-value		19.451	***	19.843	***	20.357	***	10.566	***	10.528	***	10.560	***
Observations		202		202		202		215		215		215	

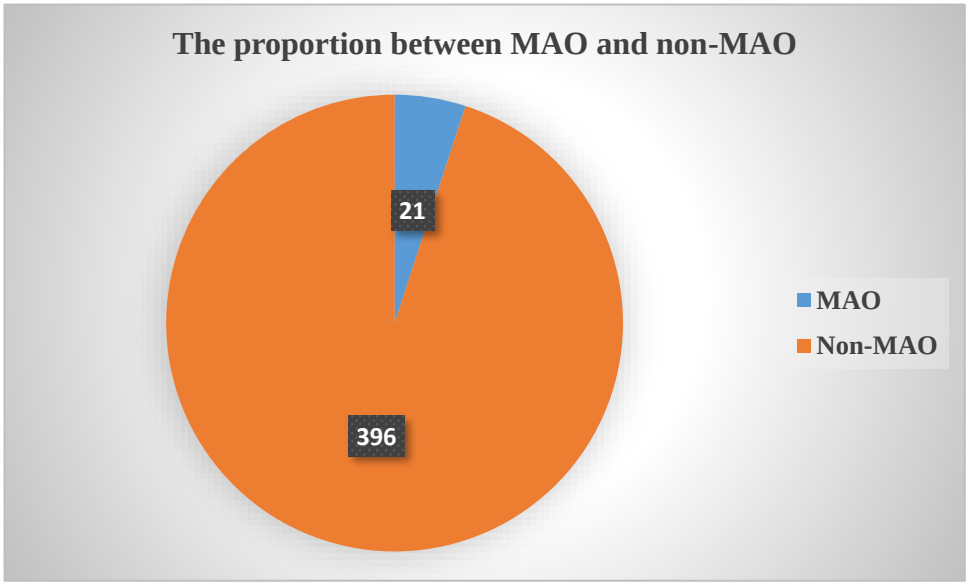
Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level

Appendix 10: Regression of effect of MAPR on audit quality measured by CA

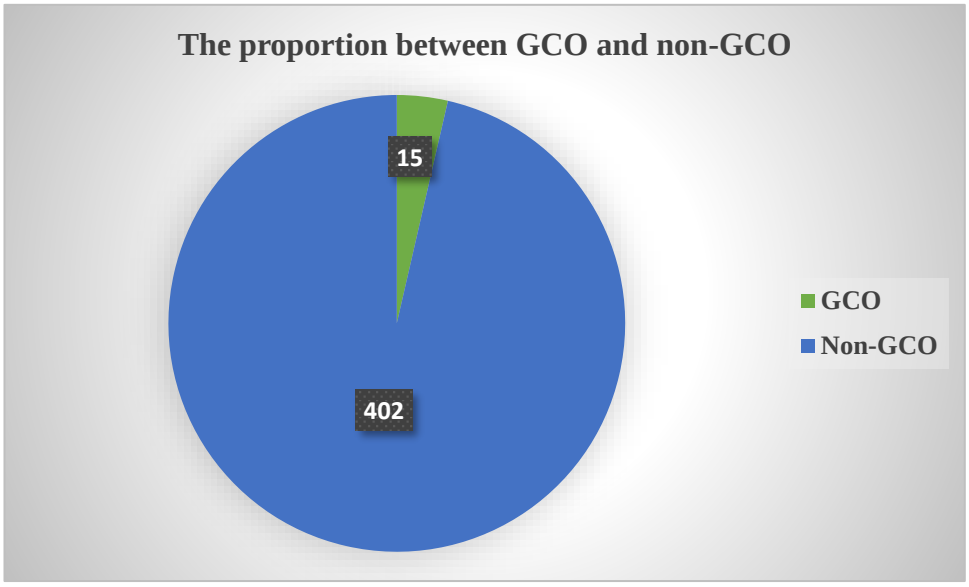
Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0057					
		(-0.7485)					
2 MAPR	-			0.0147	**		
				(2.0596)			
3 MAPR	-					-0.0257	**
						(-2.2100)	
Control variables							
BIG4	-	0.0001	**	0.0153	*	0.0172	**
		(1.9127)		(1.9329)		(2.1720)	
AGE	-	-0.0010		-0.0011		-0.0007	
		(-2.0748)		(-2.2274)		(-1.3411)	
SIZE	+	-0.0027		-0.0032		-0.0028	
		(-0.8971)		(-1.0845)		(-0.9345)	
INDGROW	+	0.0366		0.0313		0.0430	
		(0.9603)		(0.8277)		(1.1473)	
CFO	-	-0.4080	***	-0.4146	***	-0.4187	***
		(-10.6030)		(-10.7832)		(-10.8481)	
LOSS	-	-0.0561	***	-0.0574	***	-0.0580	***
		(-5.2213)		(-5.3550)		(-5.4082)	
LEV	+	-0.0357	*	-0.0356	*	-0.0358	*
		(-1.7708)		(-1.7751)		(-1.7842)	
Intercept		0.0815		0.0667	*	0.0687	
		(1.4558)		(1.6514)		(1.2898)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.218		0.225		0.226	
F-value		15.512	***	16.112	***	16.216	***
Observations		417		417		417	

Significance levels for a a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Appendix 11: Proportion between MAO and non-MAO in thesis' sample



Appendix 12: Proportion between GCO and non-GCO in thesis' sample



Appendix 13: Regression of effects of simultaneous rotation of MAPR and AFR

Variables	Expected sign	**1 MAPR** Coefficient (t-statistic)		**2 MAPR** Coefficient (t-statistic)		**3 MAPR** Coefficient (t-statistic)	
Test variables							
1 MAPR	-	-0.0052					
		(-0.9138)					
2 MAPR	-			0.0076			
				(1.4238)			
3 MAPR	-					-0.0080	
						(-0.9152)	
AFR	-	-0.0116		-0.0112		-0.0119	
		(-1.3924)		(-1.3445)		(-1.4286)	
Control variables							
BIG4	-	-0.0008		-0.0005		0.0001	
		(-0.1300)		(-0.0892)		(0.0210)	
AGE	-	-0.0003		-0.0003		-0.0001	
		(-0.7536)		(-0.7007)		(-0.2536)	
SIZE	+	0.0054	**	0.0052	**	0.0055	**
		(2.3905)		(2.3009)		(2.4525)	
INDGROW	+	-0.0401		-0.0412		-0.0355	
		(-1.4086)		(-1.4552)		(-1.2625)	
CFO	-	-0.6616	***	-0.6649	***	-0.6648	***
		(-23.0087)		(-23.0759)		(-22.9345)	
LOSS	-	-0.0571	***	-0.0578	***	-0.0577	***
		(-7.1226)		(-7.1986)		(-7.1634)	
LEV	+	-0.0488	***	-0.0488	***	-0.0489	***
		(-3.2455)		(-3.2482)		(-3.2501)	
Intercept	+/-	0.0706	*	0.0679	*	0.0593	
		(1.6897)		(1.6818)		(1.4836)	
Industry		Yes		Yes		Yes	
Years		Yes		Yes		Yes	
Adj. R^2		0.573		0.574		0.573	
F-value		63.041	***	63.358	***	63.042	***
Observations		417		417		417	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Appendix 14: Regression of effect of MAPR on audit quality measured by DA comparing to NMAPR sample

Variables	Expected sign	**FMAPR** Coefficient (t-statistic)	
Test variables			
MAPR/NMAPR	-	0.0041	
		(0.9123)	
Control variables			
BIG4	-	0.0050	
		(1.0039)	
AGE	-	-0.0008	**
		(-3.1060)	
SIZE	+	0.0061	**
		(3.4660)	
INDGROW	+	-0.0079	
		(-0.5457)	
CFO	-	-0.6635	***
		(-35.2137)	
LOSS	-	-0.0547	***
		(-8.5773)	
LEV	+	-0.0643	***
		(-6.1452)	
Intercept	+/-	0.0341	
		(1.3503)	
Industry		Yes	
Years		Yes	
Adj. R^2		0.601	
F-value		157.594	***
Observations		834	

Significance levels are a two-tailed t-test:
*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.