# ASSOCIATIONS OF CONTROLLING SHAREHOLDERS ON ACCOUNTING QUALITY: EVIDENCE FROM THAILAND

AUSANEE RATSAMEWONGJAN

A DISSERTATION PRESENTED TO RAJAMANGALA UNIVERSITY
OF TECHNOLOGY RATTANAKOSIN
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF BUSINESS ADMINISTRATION
2015

College of Innovation Management

Rajamangala University of Technology Rattanakosin

| | |
|---|---|
| **Dissertation Title** | **Associations of Controlling Shareholders on Accounting Quality: Evidence from Thailand** |
| **Student's Name** | **Miss Ausanee Ratsamewongjan** |
| **Field of Study** | **Business Administration** |

**Advisory Committee**

Asst. Prof. Korbkul Jantarakolica, Ph.D. Chairperson

Thanomsak Suwannoi, D.B.A. Member

Rajamangala University of Technology Rattanakosin approved this Dissertation in partial fulfillment of the requirements for the degree of Doctor of Business Administration.

..... Director of College

(Mr. Rapee Moungnont)

..... Director of Doctor of Business

(Asst. Prof. Dr. Korbkul Jantarakolica) Administration Program

**Examination Committee**

..... Chairperson

(Assoc. Prof. Dr. Tatre Jantarakolica)

..... Member

(Asst. Prof. Dr. Sillapaporn Srijunpetch)

..... Member

(Dr. Pailin Trongmateerut)

..... Member

(Asst. Prof. Dr. Korbkul Jantarakolica)

..... Member

(Dr. Thanomsak Suwannoi)

| | |
|---|---|
| **Dissertation Title** | **Associations of Controlling Shareholders on Accounting Quality: Evidence from Thailand** |
| **Student's Name** | **Miss Ausanee Ratsamewongjan** |
| **Degree Sought** | **Doctor of Business Administration** |
| **Major** | **Business Administration** |
| **Academic Year** | **2015** |

**Advisory Committee**

| | |
|---|---|
| Asst. Prof. Korbkul Jantarakolica, Ph.D. | Chairperson |
| Thanomsak Suwannoi, D.B.A. | Member |

## ABSTRACT

This study examines the accounting quality in associations with controlling shareholders. The samples consisted of 370 listed firms traded on the Stock Exchange of Thailand (SET) between 2008 and 2012.

Controlling shareholders were determined by two cutting points of voting rights: (1) not less than 10%, and (2) not less than 25%. On the other hand, accounting quality was measured by four discretionary or abnormal accruals models; including (1) the Dechow and Dichev model (2002), (2) the Modified Jones model (1995), (3) the Yoon, Miller, and Jiraporn model (2006), and (4) the adjusted accruals model. The discretionary accruals value was determined by the estimated results of panel data models with random effects using (1) all samples, (2) sample categorized by industry, and (3) sample categorized by year of operation. This study also examined the effects of the

types of controlling shareholders and the levels of ownership on accounting quality.

The results showed that the Alignment Effect and the Stewardship theory were likely to be more severe in the firms with a controlling shareholder which had not less than 25% of voting rights, since these two factors were strongly associated with high accounting quality. Furthermore, the accounting quality of controlling shareholders firms was also better than the counterparts. However, the voting rights of the controlling shareholders must be high enough to make decision or block voting. The results coincided with conditions of the Alignment Effect and the Stewardship theory. On the contrary, the accounting quality of the firms which controlling shareholders had voting rights more than 10% but less than 25% was low. The result also coincided with the indications of the Entrenchment Effect. As a whole, this study found enough evidences to confirm for the association between the accounting quality and controlling shareholders, by which the level voting rights had higher effect on the accounting quality than the types of controlling shareholders.

| | |
|---|---|
| **ชื่อเรื่องดุษฎีนิพนธ์** | **ผู้ถือหุ้นที่มีอำนาจควบคุมกับคุณภาพของบัญชี หลักฐานจากประเทศไทย** |
| **ชื่อผู้เขียน** | **นางสาวอุษณีย์ รัศมีวงษ์จันทร์** |
| **ชื่อปริญญา** | **บริหารธุรกิจดุษฎีบัณฑิต** |
| **สาขาวิชา** | **บริหารธุรกิจ** |
| **ปีการศึกษา** | **2558** |

**คณะกรรมการที่ปรึกษาดุษฎีนิพนธ์**

| | |
|---|---|
| ผศ.ดร. กอบกูล จันทรโคลิกา | ประธานกรรมการ |
| ดร. ถนอมศักดิ์ สุวรรณน้อย | กรรมการ |

## บทคัดย่อ


งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ของผู้ถือหุ้นที่มีอำนาจควบคุมกับคุณภาพของบัญชี การศึกษานี้ใช้กลุ่มตัวอย่างเป็นบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย จำนวน 370 บริษัท โดยทำการศึกษาเป็นระยะเวลา 5 ปี ในระหว่างปี พ.ศ. 2551 ถึง พ.ศ. 2555

การศึกษานี้ได้จำแนกผู้ถือหุ้นที่มีอำนาจควบคุมเป็น 2 ประเภท คือ ผู้ถือหุ้นรายใหญ่ที่มีสิทธิ์ออกเสียงมากกว่าหรือเท่ากับร้อยละ 10 และมากกว่าหรือเท่ากับร้อยละ 25 ของสิทธิ์ออกเสียงทั้งสิ้น การวัดคุณภาพของบัญชีนั้น การศึกษานี้มุ่งเน้นไปที่คุณภาพของรายการคงค้างโดยใช้ 4 ตัวแบบที่เป็นที่นิยม ประกอบด้วย (1) ตัวแบบของ Dechow and Dichev (2002), (2) ตัวแบบของ Modified Jones (1995), (3) ตัวแบบของ Yoon, Miller, and Jiraporn (2006), และ (4) ตัวแบบรายการคงค้างที่มีการปรับปรุงโดยการศึกษานี้ งานวิจัยนี้ประมาณค่าของรายการคงค้างโดยใช้การวิเคราะห์ข้อมูลแบบ Panel – Random Effect ใน 3 แนวทาง ประกอบด้วย (1) ประมาณค่ารวมของกลุ่มตัวอย่างทั้งหมด (2) ประมาณค่าโดยแยกเป็นของแต่ละกลุ่มอุตสาหกรรม และ (3) ประมาณค่าโดยแยกเป็นของแต่ละปี นอกจากนี้ ยังได้ทำการศึกษาถึงผลกระทบของประเภทของผู้ถือหุ้นที่มีอำนาจควบคุมและระดับความเป็นเจ้าของที่มีต่อคุณภาพของบัญชีอีกด้วย

ผลการศึกษาพบว่า บัญชีของกิจการที่ผู้ถือหุ้นที่มีอำนาจควบคุมมีสิทธิ์ออกเสียงมากกว่าหรือเท่ากับร้อยละ 25 ของสิทธิ์ออกเสียงทั้งหมด มีคุณภาพดีกว่ากิจการที่มีผู้ถือหุ้น

น้อยกว่าร้อยละ 25 ของสิทธิ์ออกเสียงทั้งหมด นอกจากนี้ บัญชีของกิจการที่ผู้ถือหุ้นที่มีอำนาจควบคุมเป็นครอบครัวเดียว หรือสองครอบครัว หรือชาวต่างชาติ ก็มีคุณภาพดีด้วย แต่ทั้งนี้ ผู้ถือหุ้นที่มีอำนาจควบคุมดังกล่าว จะต้องมีสิทธิ์มากเพียงพอที่จะตัดสินใจหรือยับยั้งการลงมติในกิจการได้ ผลการศึกษาดังกล่าวข้างต้นน่าจะสอดคล้องกับทฤษฎีผลประโยชน์สอดคล้องกันและทฤษฎีผู้พิทักษ์ผลประโยชน์ ในทางตรงข้าม บัญชีของกิจการที่ผู้ถือหุ้นที่มีอำนาจควบคุมมีสิทธิ์ออกเสียงมากกว่าหรือเท่ากับร้อยละ 10 แต่น้อยกว่าร้อยละ 25 ของสิทธิ์ออกเสียงทั้งหมดจะมีคุณภาพต่ำ ซึ่งผลการศึกษานี้น่าจะสอดคล้องกับทฤษฎีผลกระทบการสร้างบารมี ในภาพรวมของการศึกษานี้ พบว่ามีหลักฐานที่ยืนยันถึงความเกี่ยวข้องระหว่างคุณภาพของบัญชีกับผู้ถือหุ้นที่มีอำนาจควบคุม โดยระดับของอำนาจควบคุมมีผลกระทบต่อคุณภาพของบัญชีมากกว่าประเภทของผู้ถือหุ้นที่มีอำนาจควบคุม

# ACKNOWLEDGEMENTS

I would like to gratefully and sincerely thank to my academic father, my dissertation committee chair, Associate Professor Dr. Tatre Jantalakolica, for his guidance, patience, understanding, and kindness. He is the best dissertation chairman in my entire life. I am deeply grateful for time and energy that he has given to me for making sure I was on the right track. His dedication is engraved on my heart forever and I cannot thank him enough.

I would also like to thank my advisor, Assistant Professor Dr. Korbkul Jantarakolica for her guidance, support, understanding, kindness, and encouragement in every step of my doctoral student life. She is my advisor and one of the nicest and kindest person I have ever met. Additionally, I would like to thank my co-advisor, Dr. Thanomsak Suwannoi for his valuable mentorship, useful comments, and suggestions throughout the stages of writing my dissertation. I reach this milestone with his intellectual support and guidance.

In particular, I would like to give my special thanks to my dissertation committee, Assistant Professor Dr. Sillapaporn Srijunpetch and Dr. Pailin Trongmateerut for their helpful suggestions and valuable comments. I would also like to thank the College of Innovation Management and staff for their support and assistance and my D.B.A. friends and D.B.A. family for their encouragement, assistance, and friendship.

I also acknowledge the doctoral scholarship that I received from the University of Phayao. My sincere thanks go to my bosses, Professor Dr. Mondhon Sanguansermsri, President of the University of Phayao and Associate Professor Dr. Charlee Thongruang, Vice President for Administration for their

understanding and encouragement. They have been the nicest and kindest bosses anyone could ever imagine.

My special thanks go to my friends, Dr. Weerapong Kitiwong, Dr. Joompoth Sanitthangkul, Assistant Professor Dr. Napaporn Likitwongkajon, Assistant Professor Dr. Rujipas Potongsangarun, Assistant Professor Dr. Kwan Sanguansermsri, Assistant Professor Dr. Prakobsiri Pakdeepinit, Dr. Piyapong Sangkaew, Dr. Thanyanan Worasesthaphong, and Ms. Nittaya Boonchum for sharing their expertise, answering my questions, helping me to deal with my work, and supporting my mind. I would like to thank all of my friends and my colleagues at the University of Phayao, and many friends for their support and encouragement.

Finally and most importantly, I am very grateful for my family who has provided me with everything I wanted to get the degree done. I would like to thank my father for his unconditional love that he had given me throughout his life. My special thanks go to my uncle, Dr. Pongsakorn Hongkrai who inspired me to pursue a doctoral degree. He also loved me, gave me suggestions, and taught me throughout his life. My grateful thanks to my mother and my brother who always listen to me, support, and encourage me during my difficult times. Words cannot adequately express my appreciation for their indelible love and dedication they have given to me. I would like to dedicate this dissertation to all of them.

Ausanee Ratsamewongjan

# TABLE OF CONTENTS

## TABLE OF CONTENTS (CONT.)

Page

Chapter

## TABLE OF CONTENTS (CONT.)

# LIST OF TABLES

Page

Tables

## LIST OF TABLES (CONT.)

Page

Tables

# LIST OF FIGURES

Page

Figures

# CHAPTER 1

# INTRODUCTION AND MOTIVATION

This chapter aims to present the introduction and motivation of this study which leads to the research question and the contribution that this work has produced. This chapter features as follows: the introduction and motivation, the research question, the objectives of this study, the research contributions, the scope of this study, and the outline of this dissertation.

## Introduction and Motivation

Ownership Structure has been described as a fundamental element of corporate governance. Most listed firms in East Asia have ownership concentrated in the hands of a few large shareholders or are affiliated with a business group which is controlled by a family (Fan and Wang, 2002). Similar to other East Asian countries, ownership structure in Thailand tends to be highly concentrated (Kuntisook, 2008). In Thailand, the average percentage of common shares that possessed by three largest shareholders in 1993 is around 47 percent (La Porta et al.,1998). Moreover, prior studies on corporate controlling shareholders in Thai listed firms found that the average percentage of common shares owned by families in 2006 was approximately 42.6 percent, compared to 39.6 percent in 2001 (Kuntisook, 2008), 45.6 percent in 2000, and 51.1 percent in 1996 before the financial crisis period (Khanthavit et al., 2003). This suggests that the average percentage of common shares owned by families is still comparatively high even after the financial crisis in 1997.

In Thailand, there are many empirical evidences from media news that illustrates the fact that controlling shareholders have power to prepare financial statement and can affect accounting quality. The first evidence: firm A is listed on the Stock Exchange of Thailand (SET) and is conducting their business in Steel sector in Industrials industry. The revenues of firm A were over 23 billion baht in 2007 and 2008, and decreased to approximately 12 billion baht in 2009 and 2010. Moreover, firm A's total assets were over 30 billion baht in 2007 and 2008, and decreased to approximately 23 billion baht in 2009 and 2010. Firm A was accused by the Securities and Exchange of Commission (SEC) that it presented the account payables of 2009 in the financial statement difference from the fact (Stock News Online, 2015). Firm A had no controlling shareholders in 2008, but controlling shareholder of firm A was changed from a corporation which is listed in Cayman Island in 2009 to a Thai family in 2010.

The second evidence is similar to the evidence of the firm A. Firm B is also listed on SET and is also conducting their business in Steel sector in Industrials industry. Firm A and the firm B are in the same business group. The firm B's revenues were over 22 billion baht in 2007, increased to 36 billion baht in 2008, and decreased to 21 billion baht in 2009. Moreover, the total assets of firm B were over 44 billion baht in 2007, increased to 64 billion baht in 2008, and decreased to 56 billion baht in 2009. Firm B was accused by SEC that it presented the account payables of 2009 in the financial statement lower from the fact (Stock News Online, 2015). Firm B had a controlling shareholder as a Thai family in 2008, changed to a corporation registered at Cayman Island in 2009, and back to a Thai family again, the same family in 2008, in 2010.

The third evidence, firm C is again listed on SET and is doing business in Construction Materials sector in Property and Construction industry. The revenues of firm C were over 1.076 billion baht in 2007, and decreased to 569 and 379 million baht in 2008 and 2009, respectively. Similarly, the revenues,

firm C's total assets were over 2.472 billion baht in 2007, and decreased to 1.652 and 1.480 billion baht in 2008 and 2009, respectively. Firm C was accused by SEC that the firm falsely filed the sale revenues and profit of 2007 in the financial statement upper from the fact, leading to record large amount of bad debt expenses in 2008 (Thai News Agency, 2012). Firm C had a controlling shareholder as a Thai family with 41.02% of voting rights in 2008 and decreased to 17.40% of voting rights in 2009. Moreover, the controlling shareholders had changed to be two Thai families in 2010.

The fourth evidence, firm D is a SET listed company and is doing business in Steel sector in Industrials industry. The revenues of firm D were over 128 million baht in 2007, and increased to 169 and 175 million baht in 2008 and 2009 respectively. Similarly, the revenues, firm D's total assets were over 163 million baht in 2007, and increased to 259 and 264 million baht in 2008 and 2009, respectively. Firm D was accused by SEC that reported the purchases of material, sale revenues, sales return, and inventory and assets for auction of 2008 and 2009 in the financial statement difference from the fact. (the Securities and Exchange of Commission, 2013). Firm D had a controlling shareholder as a Thai corporation in 2008, a Thai family in 2009, no controlling shareholders in 2010, and a Thai family in 2011 which is different from 2009.

According to these four examples, the accused periods of all firms have changed in ownership structure. All cited cases have changed in types of controlling shareholders, while firm C has changed in a type of controlling shareholders and a level of ownership. Therefore, based on the previous discussion, the ownership structure, a level of ownership, and a type of ownership have affected the present financial statement and accounting quality.

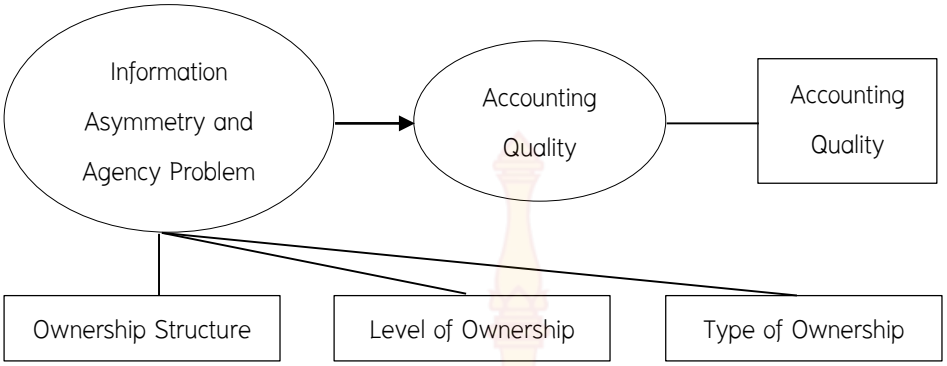


**Figure 1:** The Relation between Accounting Quality and Controlling Shareholders

Figure 1 shows the relation between accounting quality and controlling shareholders. It demonstrates that communication of accounting information with stakeholders, e.g., customers, suppliers, employees, lenders, shareholders, investors, regulators, competitors, and community, has two important problems: the information asymmetry and the agency problem. Shareholders with high voting power significantly prepare the accounting data, stipulate the accounting choice, and determine the accounting quality.

According to Jensen and Meckling (1976), in the US and the UK, conflicts of interests have increased from detachment of ownership and control between managers (agents) and owners (principals). They explain further that ownership is spread to shareholders, who are controllers, agency problems arise from the conflicts of interest between managers and shareholders who own an insignificant amount of equity in the firm. In contrast to Fan and Wang (2002), when ownership is focused on a level at which an owner gains effective control of the firm, the characteristic of the agency problem moves from conflict between the managers and shareholders to conflict between the controllers, that is the manager, and minority shareholders. Previous studies found that ownership structure can affect earnings quality. For example, the study of Fan

and Wang (2002) found that ownership concentration is associated with low earning quality in East Asia context.

## Research Question

From the introduction and motivation of the research, the research question is stated: How will characteristics or different characteristics of the firms affect accounting quality including levels of controlling shareholder, types of controlling shareholder, and levels of ownership?

## Objectives of the Study

The first objective of this study is to examine the association between controlling shareholder characteristics and accounting quality. The results will provide the knowledge and understanding of the effects of controlling shareholder characteristics on accounting quality. This study characterizes the controlling shareholder characteristics by type of ownership and level of ownership. Therefore, the second objective of this study is to deeply investigate the relationship between accounting quality and the firms with different types of controlling shareholder. The third objective of this study is to deeply investigate the relationship between accounting quality and the firms with different levels of ownership.

## Contributions

For contribution to academic, this study provides additional evidence to the research on accounting quality and ownership structure, in particular, concentrated ownership, and it also provides a better understanding of the controlling shareholder characteristics (types and levels of ownership). Importantly, the study additionally examines the impact of ownership structure on reporting quality by linking accounting quality literature with the theory of

controlling shareholder characteristics. It also proposes the new adjusted accruals model.

This research differs from prior researches in the following two ways. First, the previous studies on accounting quality, which measure accounting quality by discretionary accruals model, mostly predict the abnormal accruals value by all cross-sectional data. This study adds alternative estimation to check robustness by panel analysis with each industry data and each year data. Second, many studies determine that a controlling shareholder is the shareholders with voting rights in the firms more than any level of voting rights such as more than 10% of voting right (Kuntisook, 2008; Anderson and Reeb, 2003) and more than 25% of voting rights (Kiatapiwat, 2010). However, according to Thai law, at least 25% of shareholder's voting rights are sufficient power to manage something in the firm. This study makes a difference by giving the comparative analysis between the controlling shareholders with cutting point level at 10% and 25% of voting rights.

For contribution to practice, this research should be of interest to various parties such as Thai and foreign investors, academics, practitioners, regulator, and policy makers in the Thai capital market.

For investors, this study shows that a firm with unusual change in ownership structure might indulge in accruals earning management, thereby having low quality of earnings. Therefore, before making an investment decision, the investors should be aware of this. In other words, the unusual change in ownership structure may be a signal of accounting earning management and of a low quality of earning.

For academics, the results of this study contribute additional evidence to literature relating to controlling shareholder characteristics and accounting quality. This research provides a greater knowledge of the effects of controlling shareholder characteristics in emerging markets, specifically in Thailand.

Moreover, this study uses new methodologies for alternatively estimating on discretionary or abnormal accruals. The researchers might apply these alternative methodologies in their studies.

Importantly, for regulators, the results show that the more level of ownership is the more quality of accounting. This might suggest that the regulators should determine the appropriate proportion of ownership structure in the Thai listed firms.

## Scope of the Study

The scope of the study is noted as follow. First, only the listed companies within SET will be counted as the population in the study. Second, only firms which disclosed their annual reports during 2007 to 2013 will be samples of this study.

## Outline of Dissertation

The rest of this dissertation is divided into five chapters as follows. Chapter 1 introduces the research and its objective. Chapter 2 reviews the related literature and presents hypotheses development. Chapter 3 discusses the data and sample selection, the measurement of variables, and the regression models employed to test the hypotheses. Chapter 4 reports the descriptive statistics, the empirical findings, and the additional analyses. Chapter 5 provides concluding remarks, limitations, and suggestions for the future research.

# CHAPTER 2

# LITERATURE REVIEW AND HYPOTHESES

This chapter reviews prior literatures relevant to this study and develop hypotheses to be tested. For accounting quality, this study focuses on accruals based earning quality that has been widely used in the research on accounting quality.

## The Need for Disclosure in Stock Markets

A stock market generally takes the role as the intermediary between savers and entrepreneurs. Its key function is to match between the savers, who are looking for investments, and the entrepreneurs, who need money to run their businesses. The savers give their money by purchasing the company's stock from the entrepreneurs, who in turn use the money to do business on behalf of the savers. The savers finally share the entrepreneurs' profits in terms of dividends.

To make their investments, the savers need the entrepreneurs to disclose both corporate financial and non-financial information. The quality of disclosed information is crucial for the savers. However, it may be undermined because of agency problem and information asymmetry.

## Agency Problem

The saver-entrepreneur relation can be referred as the principal-agency relation. The entrepreneur, who is the principal, may face with agency problem. According to Healy and Palepu (2001), the agency problem occurs

when the entrepreneur chooses to act selfishly. He acts in response to his own benefits rather than the savers' benefits. His acts sometimes harm the savers' interests. Whilst Chen, Lu and Sougiannis (2012) believe that agency problem arises when shareholders' (savers) interests differ from managers' (entrepreneurs) interests.

Agency problem can be explained by the agency theory, which is one of the key theories in accounting study. Agency theory has been dominant in the organizational and strategic management studies. It was first developed by the financial economic scholars and has been widely used in organizational literatures and strategic management studies (Pastoriza and Arino, 2011). Especially, many scholars have used agency theory to study the executive's compensation scheme (Wasserman, 2006).

Under agency theory, the conflict of interest between the principal and agent leads to the agency loss (Donaldson and Davis, 1991), the agency costs (Wasserman, 2006), and the principal's losses (Pastoriza and Arino, 2011). Donaldson and Davis (1991) point out that an agency loss occurs when the residual claimants that the shareholders receive from the managers' operations of their business are lesser than those residual claimants that they would receive if they run the business by themselves. To alleviate this agency loss, incentives and rewards are then used by the shareholders to align the managers' interests with their interests. Meanwhile the board of directors is appointed by them to monitor the managers' opportunistic behaviors. To mitigate the agency costs, the companies set up proper monitoring functions and suitable incentive schemes (Wasserman, 2006). Pastoriza and Arino (2011) believe that the principals have to set up the mechanisms to curtail the agents' misuse of power and to reduce the likelihood of information asymmetry. These mechanisms are, for example, financial incentive scheme and a good governance structure.

**Agency Theory versus Stewardship Theory**

Unlike agency theory, stewardship theory seemingly illustrate the positive side of the relationship between principals and agents. In the view of Donaldson and Davis (1991), stewardship theory hypothesizes that there is no risk of managers' internal motivations, which lead them to behave opportunistically. The managers have motivations to behave in a very good way, especially to behave as a good steward. They put all their efforts to bring the company achieve a good performance. However, the performance varies according to the company's structural situation that may or may not help the managers run a well-designed plan. This structural situation is, for example, the organizational structure, the delegation of authority, and the role of the managers that the managers expect and that is expected by the shareholders.

Similarly to Donaldson and Davis (1991), Pastoriza and Arino (2011) underscore that, under stewardship theory, the divergence between agents' interests and principals' interests is assumed not to occur. Therefore, the agents' behaviors are to maximize the shareholders' wealth. They also attach importance to the firm's goals instead of their own goals. The internal control function is then to serve the better coordination between the agents and the principals. Furthermore, in contrast to the agents' behaviors under Agency Theory that are motivated by extrinsic rewards, those under Stewardship Theory are motivated by intrinsic motivations (e.g., growth, responsibility, and attainment).

Whether principals and executives choose to behave like agents or stewards are influenced by psychological factors and situational factors and each party's expectation of each other (Wasserman, 2006 and Pastoriza and Arino,2011). Pastoriza and Arino (2011) believe that choosing to act as an agent or a steward is a rational process. One must think of both pros and cons of what

he chooses. This can lead to the win-win situation. The agents choose to do things, which serve their interests and also protect the principals' interests.

Choosing to act as an agent or a steward also depends on situations. Wasserman (2006) indicates that stewardship theory is basically used to describe behaviors of executives who are founders of the companies. These executives are more likely to act as stewards. Their strong sense of attachment to and psychological ownership of the company leads them to stay longer with the company even when he gets low salary. On the other hand, agency theory is generally used to explain the behaviors of executives who are not the founders and to describe the compensation schemes.

The non-alignment between the psychological factors and the situational factors will cause the problem with each party's choice to act as an agent or a steward (Pastoriza and Arino, 2011). The perfect match between this psychological factor and this situational factor makes the executives are more likely to choose to be stewards. For example, the executives are motivated by intrinsic rewards and the shareholders also delegate their authority to the executives. If there will be the mismatch between these two types of factors, the executives may suffer from their choice.

The principal's and the agent's selection of being an agent or a steward builds a transient relationship. Pastoriza and Arino (2011) show four relationships between principal and manager: agent-agent relationship, steward-agent relationship, agent-steward relationship, and steward and steward relationship. Each type of relationship can develop or transform into other type of relationship overtime. This is because both the principal and the manager have learnt from each other's interactions and adjust themselves to each other's behaviors.

Pastoriza and Arino (2011) also explain the interaction between a principal and a manager. The active agent's (the principal) action has impacts on the reactive agent's (the manager) reaction. The interaction between active

agent and reactive agent leads to the three outcomes: extrinsic outcomes, intrinsic outcomes, and transcendental outcomes. The extrinsic outcomes are the active agent's action and the reactive agent's reaction that can be easily observed. On the other hand, the intrinsic outcomes are unobservable things that happen to the active agent but have future impact on the agent's decision and his relation with reactive agent. The transcendental outcomes are things that happen to the reactive agent resulted from the active agent's action. The principal and the manager need to learn from their interaction and the three outcomes. Their rational learning leads them to select to act as an agent or a steward at a single point of time. Different situations may result in their selections of being an agent or a steward. In some situations they may opt to act as an agent meanwhile in other situations they may choose to as a steward.

The major different between agency theory and stewardship theory is each theory's assumption that whether the agents' interests align with the principals' interest. This assumption leads the agents and the principals to opt to act as an agent or a steward. Choice of being an agent or principal depends on motivations influenced by psychological and situational factors and outcomes of the interactions. Importantly, both the agents and principals have continuously and mutually learnt from their interactions and develop their principal-agent relationship. This relationship is a transient relationship and can be adjusted. In addition, as suggested by Wasserman (2006), agency theory and stewardship theory go well together. The applicability of the two theories depends on personal characteristics of the executives and situation. Sometimes agency theory may be more applicable while stewardship theory may be less applicable. Sometimes stewardship theory may be more applicable while agency theory is less applicable. For example, steward theory is applicable to explain the executives' behaviors in the starting periods of new businesses or in the firms that have controlling shareholders with sufficient absolute power.

However, once the businesses fully grow or the firms that have controlling shareholders without comprehensive power, agency theory can explain these executives' behaviors very well.

**Information Problems and Information Asymmetry**

Healy and Palepu (2001) indicate that the conflicts between savers' and the entrepreneurs' motivations create information problems. Importantly, they believe that the problems may finally be harmful to the stock markets. They give the example that in the stock markets there are both good and bad ideas of businesses. The entrepreneurs need to provide information about these two types of ideas for investors (savers). For investment valuation, investors and entrepreneurs use their own available information. The worst case occurs if the investors are unable to distinguish the bad ideas from the good ones and the entrepreneurs, at the same time, try to present the bad ideas as the good ones. As a result of this, the stock markets may be deceived by the entrepreneurs' provided information.

The investors get conflicting report for their investing decisions (Viscusi, 1997). Especially, deceived information provided by the entrepreneurs is the investors' information problem. Information problem does not only harm the investors but also the lenders. Ortiz-Molina and Penas (2008) found that the lenders reduce the maturity of loan to militate against the information problem. Short-term maturity would help the lenders monitor closely on the borrower's disclosed information. In addition, according to Weiss and Wruck (1998), the entrepreneurs have incentive to report inaccurate and biased information rather than accurate and unbiased one. This helps them protect their interests.

Information problem is also in terms of information asymmetry. Unequal access to the disclosed information leads to the information asymmetry (Eleswarapu, Thompson and Venkataraman, 2004). Aboody and Lev (2000)

believe that information asymmetry is inevitable. It occurs when managers' and investors' ability to access to information of investment productivity are unequal. The managers, who are an insider, get the information continuously meanwhile the investors, who are an outsider, derive this information only when it is publicly disclosed. Brown, Hillegeist and Lo (2004) also indicate that information asymmetry occurs when the investors use their private information for investing decisions. The investors are worried about information asymmetry thereby adjusting the stock price (Leuz, 2003).

### Ownership Structure

Ownership structure represents the distribution of a firm's shares among shareholders. It also indicates the degree to which a shareholder has power to control the company's decision-making by using their voting right. According to Demsetz (1983), a shareholder feels that his control of resource is undermined if the shares are distributed to many people. The larger number of shareholders, the lesser power he has. This is because he feels that he is unable to control management and the management is therefore free to do everything.

Previous studies observe the influence of ownership structure on their interesting determinants. For example, Cho (1998) documents that ownership structure impacts firm value. Fan and Wong (2002) found that ownership structure leads to the agency problem. Interestingly, Garkaz, Ghadirzade and Mehrazin (2012) report that for the listed companies in Tehran stock exchange ownership structure does not impact information asymmetry.

### Type of Controlling Shareholders and Level of Ownership

How ownership structure impacts previous studies' interesting determinants can be observed through types of shareholders and level of

ownership. Previous studies define types of shareholders differently. For example, Faccio and Lang (2002) classify ultimate controlling shareholders into six group: family, widely held financial institutions, state, widely held corporation, cross-holdings and miscellaneous. For their study, Barnea and Rubin (2010) separate shareholders into two types. The first one is an insider who has close relationship with the company. This type of shareholders includes block holders and management of the firm. The second one is other shareholder, for example institutional investors and investors with small shares. Each type of the investors has their own interest, which differs from each other (Aguilera and Jackson, 2003)

Previous studies also use different criteria to identify level of ownership. For example, Rubin (2007) uses the percentage of outstanding shares to measure ownership concentration and the cutoff point is 10%. The cutoff point is considered from the S.E.C's Act. Fan and Wong (2002) use both cash flow (ownership) and voting right (control) to identify the concentration of ownership. Their cutoff point is 50%. The higher percentage indicates the more power, the higher level of ownership and the higher concentration.

**Ownership Concentration in Thailand**

Most East Asian firms have high ownership concentration, including Thailand (Claessens et al., 2000). Claessens et al. also found that a significant proportion of shares were concentrated in the hands of one or a not many shareholders. Sixty percent of the firms that have family controllers and also have top management that is associated with the controlling family. Firms are often associated with business groups, consisting of diversified public and private firms controlled by the same controlling shareholder (Fan and Wang, 2002; Claessens et al., 2000). Likewise, Khanthavit et al. (2003) investigated corporate ownership in Thailand and compared ownership structure before the

East Asian financial crisis (1996) and after the crisis (1997) to increase the effects of the economic downturn in ownership. The results show that the after-crisis ownership structure declined in the role of families in controlling publicly traded firms. Controlling shareholders appeared to have used less complicated shareholdings, in the forms of pyramidal structures and cross-shareholdings, to enhance their control after the crisis. The pattern of 'direct ownership' is, often, being used in most of the Thai public firms during the pre-crisis and post-crisis years. Wiwattanakantang (2001) also noted that simple ownership structures were typically employed; pyramid and across-shareholder arrangement were less than one-fourth of the sample.

The examples of controlling ownership structure of Thai listed firms, the first case is the simple structure of direct shareholder ownership by the Vanich family in Univanich Palm Oil Public Co.,Ltd. (UVAN). UVAN is listed on the SET and owned directly by the Vanich family which is also the founder of the firm. The Vanich family controls 27.27% of the firm's votes and Chean Vanich Co., Ltd. controls 5.55% as of 15 March 2012. Chean Vanich Co., Ltd. is also controlled by Vanich family with 97.00%.

The second case is an example of direct shareholder ownership by the Chonsaranon family and the Nirandakun family in Workpoint Entertainment Public Co.,Ltd. (WORK). WORK is listed on the SET and owned directly by two families which are the Chonsaranon family and the Nirandakun family, and are also the founder of the firm. The Chonsaranon family controls 37.94% of the firm's votes and the Nirandakun family controls 37.10% as of 29 March 2012.

The third case is an example of controlling ownership by direct and indirect ownership. Charoen Pokphand Foods Public Co., Ltd. (CPF) is a leading manufacturer of prepared animal feeds and is listed in the SET. CPF is controlled by a Charoen Pokphand Group Co., Ltd., and Charoen Pokphand Holding Co., Ltd. with 25% and 11.38% of total shares as of 29 March 2012, respectively.

Charoen Pokphand Holding is owned by Charoen Pokphand Group Co., Ltd. which is controlled by the Chearvanont family with 81.98%.

The fourth case is an example of direct shareholder ownership by the domestic corporation in Thai Can Paper Public Co., Ltd. (TCP). TCP is listed on the SET and owned directly by Thai corporation which is the Crown Property Bureau (CPB). TCP is controlled by the SCG Paper Public Co., Ltd. (SCGP) with 86.31% of firm's votes as of February 14, 2012, SCGP is owned by the Siam Cement Public Co., Ltd (SCC) and the Cement Thai Steel Co., Ltd. with 66.32% and 31.86% of total shares, respectively, and SCC is owned by the Crown Property Bureau (CPB) with 86.13%.

**Impacts of Ownership Concentration**

The nature of a firm's ownership structure will affect the nature of the agency problems between managers and outside shareholders, and among shareholders. When ownership is diffused, as is the case in US and UK, agency problem will stem from the conflicts of interest between outside shareholders and managers who have an insignificant amount of equity in the firm (Jensen and Meckling, 1976). On the other hand, when ownership is concentrated to a degree that one owner has an effective control of the firm, as is the case in Asia included Thailand, the nature of the agency problem shifts away from the conflicts between manager and shareholder to the conflicts between the controlling owners, mostly are also the managers, and minority shareholders (Claessens and Fan, 2002) which are caused in two competing ways: the entrenchment effect and the alignment effect. The two effects impact accounting quality.

## Accounting Quality and Its Measurement

This study's focus is to observe the impact of ownership concentration on accounting quality. This section therefore gives insight into accounting quality. The Conceptual Framework for Financial Reporting, following the Conceptual Framework of the International Accounting Standard Board (IASB), which is revised in 2014 by The Federation of Accounting Profession, Thailand, explains that the qualitative characteristics of useful financial information identify the types of information are likely to be most useful to users in making decision about the reporting entity on the basis of information in its financial report. High earnings quality supports the purpose of the Conceptual Framework in providing useful information such as a firm's performance to financial reporting user. Financial information is beneficial when it is relevant and faithful representation, and is enhanced if it is comparable, verifiable, timely, and understandable.

Relevance financial information, which has predictive value, confirmatory value, materiality, influences the difference decisions of users. For usefulness, financial information must not only be relevant, but also represent faithfully the economic phenomena in words and numbers. Faithful representation means that financial information must be complete, neutral, and free from errors.

Accounting quality or financial reporting quality is defined as the scope to which reported earnings faithfully represent underlying economics constructs. Moreover, it is also defined as the degree to which reported earnings reflect basic accounting concepts (Yoon, 2007). Many studies on accounting quality measure earnings quality in many different ways, which consist of (1) accrual quality, (2) earnings persistence and predictability, (3) reliability and relevance, (4) timeliness and conservatism, and (5) smoothness (Francis et al., 2004; Biddle and Hilary, 2006; Wang, 2006; Yoon, 2007), to characterize as the criteria for evaluation accounting quality.

1. Accrual Quality

Richardson (2003) believes that key measure of earnings quality is the deviation of net income from operating cash flows and measures earning quality using accruals. Dechow (1994) states that understanding the role of accruals in producing earnings as one of the key outputs of the accounting process is important because earnings will become a less reliable measure of firm performance (and thereby of low quality) if management uses its discretion and opportunistically manipulates accruals. Myers et al. (2003) use abnormal accruals and absolute current accruals as proxies for earnings quality. Aboody et al. (2005) also measure earnings quality using abnormal accruals and working capital accruals, and find evidence that the stock market prices these earnings quality factors. Francis et al. (2004) found that accruals quality has prominent association with cost of equity. They use Dechow and Divchev' computation that regresses current accruals on the current year operating cash flows, operating cash flows in the previous year, and operating cash flows in the previous two years. Ball and Shivakumar (2006) view accruals and earning quality as related and they state that transitory changes in operating cash flow occur because managerial manipulate causes working capital items to vary in time, and thereby lead to lower earning quality.

2. Earnings Persistence and Predictability

The current earnings must be a good indicator of future earnings and earnings quality is the likelihood that a firm can have current earnings persist in the future (Penman and Zhang, 2002; Beneish and Vargus, 2002). Moreover, the good earning quality also must have high predictive ability of earnings in the future (Bricker et al., 1995; Mikhail et al., 2003). Revsine et al. (1999) and Bodie et al. (2002) explain the relationship between persistence, accrual, and quality that the firms with low accruals level have high persistence of earnings and high earning quality. However, Janhom and Srijunpetch (2012)

studied earnings quality of Thai family firms and found that earnings persistence of family firms and non-family firms has no difference. Lipe (1990), Francis et al. (2004), and Yoon (2007) measure earning predictability by the ability to predict earnings based on its past value. Francis et al. (2004) use the coefficient of regressing current year's earnings on the previous year's earnings to calibrate earnings persistence. They also compute the square root of the error variance from the regression to assess predictability.

3. Reliability and Relevance

Maines and Wahlen (2006) explain that earning management not only can furnish the evidence on reliable financial reporting in the terms of measurement error, but also incentives to managers and statement prepares for manipulating accounting income. Many studies on reliability and relevance have focused on the association between capital market and financial statement information. Maines and Wahlen (2006) and Lang et al. (2003) measure faithfulness by the association of stock prices and returns with accounting earnings. Their studies test the relation between stock returns and accounting earnings as the accounting represents the underlying economics event. The researches on reliability and relevance of Lang et al. (2003), Francis et al. (2004), and Yoon (2007) measure the relationship between stock prices and accounting data and found that the quality of accounting data is more strongly associated with capital market data. Francis et al. (2004) regress returns on the current year's earnings and the difference between the current year's earnings and the previous year's earnings to observe relevance.

4. Timeliness and Conservatism

The accounting information should be provided to investors or users for making decisions in the time to be capable of influencing their decisions. Ball et al. (2000) believe that timeliness and conservatism together occupy transparency and also believe that conservatism makes optimistic non-

accounting information published by managers who are less creditable to uninformed user and facilitates monitoring of managers, debt, and other contracts. That is an important feature of corporate governance. On the other side of Ball et al. (2000), Sen (2005) believes that the continuing of conservatism probably reduces the predictability and the quality of earnings because it creates a hidden reserve that can inflate future earnings when investment declines. Ball et al. (2000) define timeliness as the degree to which accounting income incorporates economic income, and define conservatism as asymmetric timely loss recognition either accounting income manifests bad news faster than good news. To measure timeliness and conservatism, Francis et al. (2004) use the reverse regression of earnings on returns and the incidence of whether the return is positive or negative. The negative R-squared of the regression is used as the indicator of timeliness while the proportion of the two variables' coefficients is used as the indicator of conservatism.

5. Smoothness

The earnings smoothing is more likely associated with the earnings manipulations. Lang et al. (2003) and Biddle and Hilary (2006) measure earnings smoothness as the cross-sectional correlation between the change in accruals and the change in cash flows. Leuz et al. (2003) find that earnings smoothing is negatively associated with the quality of shareholder rights, the legal enforcement, and the quality of accounting. Likewise, Yoon (2007) states a smaller level of earnings smoothing shows higher quality of accounting. Francis et al. (2004) use the standard deviation of both operating earnings scaled by total assets at the beginning year and operating cash scaled by total assets at the beginning year to observe smoothness. They divide the standard deviation of scaled operating earnings by the standard deviation of scaled operating cash flows.

## Accounting Quality and Earnings Management

Drawing on the quality of accounting, Badloe (2011) states that it is associated with the stakeholders that this information in financial essentially meant for. The information in financial reports should be used for the decision-making of stakeholders. Lo (2007) explained that earnings management has a lot in common with earning quality (or accounting quality). Based on his study, most would agree that highly managed earnings have low quality.

Schipper (1989) indicates the use of three main criteria to distinguish earnings management from neutral activities. The three criteria are the management's motivations, the management's intention to alter reported numbers, and the exercise of judgment in accounting process. Earnings management can be in terms of real operating decision-making and reporting decision-making. The former one is to manage the timing of company's investing decision-making. On the other hand, the latter one is to choose accounting practices allowed by GAAP.

Earnings management is defined as "the use of management's discretion to make accounting choices or to design transactions so as to affect the possibilities of wealth transfer between the company and society, funds providers or cost of capital or managers compensation plans" (Stolowy and Breton, 2004). Earnings management is often referred to the information asymmetry problem between managers and stakeholders, which is powered by imperfect markets where the stakeholders do not have all the right data on a timely basis (Badloe, 2011). This can be that not only can management make accounting decisions that affect accounting information positively or negatively, but also management can act in their self-interest and increase their own wealth (agency theory). However, prior study mentioned it is not all accounting choices that are motivated by earnings management, some accounting choices are made to inform outsiders of the changing business (Palepu et al., 2007).

### The Entrenchment Effect and Accounting Quality

The entrenchment effect is based on the argument that concentrated ownership creates incentives for controlling shareholders to expropriate wealth from other shareholders (Fama and Jensen, 1983; Morck et al., 1988; Shleifer and Vishny, 1997). The entrenchment problem can be intensified if the controlling shareholder employs such mechanism as pyramid or cross-holding structure to increase their voting rights above cash flow rights (Kiatapiwat, 2010). With high voting power to control the firm's activities, the controlling shareholder can also influence the firm's financial reporting and accounting choice (Kiatapiwat, 2010). Fan and Wang (2002) found that the quality of accounting earnings was lower for East Asian firms whose controlling shareholders had higher voting rights and higher divergence between voting rights and cash flow rights.

In addition, Leuz et al. (2003) shows that earning management is more pervasive in countries where outside investor protection is weak. Haw et al. (2004) find an association between earning management and the divergence between voting rights and cash flow rights of controlling shareholders, while providing evidence of a strong legal system and infrastructure. Based on the entrenchment effect, controlling shareholder firms have less quality of accounting to conceal their control benefits and evidence of expropriation of minority shareholders.

### The Alignment Effect and Accounting Quality

Even though controlling shareholders that are owned by family member influence can also provide competitive advantages, the entrenchment effect demonstrates that controlling shareholders can lead to poor quality of earnings. The alignment effect is based on the notion that the interests of family firm and other shareholders, or controlling shareholders and minority interests, are better

aligned because of the large blocks of stock owned by family members and their long term presence (Kuntisook, 2008). Thus, according to the alignment effect, controlling shareholders are less likely to expropriate wealth from other shareholders through managing earnings. Because the wealth of family firms and controlling shareholder is closely tied to firm value, families have strong incentives to monitor employees and to create long-term loyalty in employees (Wabern et al., 2003).

Family firms also face reputation concerns arising from the family's sustained presence in the firm and its effect on third parties. The long-term nature of family ownership suggests that external bodies, such as suppliers or providers of capital, are more likely to deal with the same governing bodies and practices for longer periods in family firms than in non-family firms (Kuntisook, 2008). Moreover, the family's reputation is more likely to create longer-lasting economic consequences for the firm relative to non-family firms where managers and directors turn over on a relatively continuous basis. Based on the alignment effect, this study expects controlling shareholders with high ownership stake could influence them to choose accounting practices that align with the interest of the minority shareholders for reporting high quality of accounting.

## Hypotheses

The study's hypotheses are developed based on the agency theory, the stewardship theory, the entrenchment effect, and the alignment effect as mentioned earlier.

Kiatapiwat (2010) finds the firms with a controlling shareholder affect to both lower and higher quality of earnings than the firms with no controlling shareholders. According to the agency theory, the entrenchment effect, higher ownership could increase agency cost, then accounting quality is going to be lower. In contrast, according to the alignment effect and stewardship, higher

ownership could align with the interest of the minority shareholders for disclosure higher quality of accounting. This study expects that the entrenchment effect is likely to be more severe when a controlling shareholder with not sufficient power in the firm's activities presents low quality of accounting to conceal true performance and their private benefits from minority shareholders. On the other side, this study also expects that the alignment effect and stewardship is likely to be more severe when a controlling shareholder with absolute power in the firm's decisions aligns benefits to minority shareholders.

Many studies on controlling ownership and family firms employ 10% of total share or voting rights as a level of cutting point (Anderson and Reeb, 2003; Kuntisook, 2008). Anderson and Reeb (2003) define family firms as firms where are controlled by a single shareholder or member of family by blood or marriage, either individually or as a group. Their study was determined that family members are either on the board of directors or in the top management of the firm and directly or indirectly own more than 10% at the beginning of the fiscal year. According to many prior studies and due to a significant threshold of votes and most countries mandate disclosure of 10% and usually even lower (La Porta et al., 1998), as the reason to use 10% cutoffs in this study, ownership stakes.

However, alteration of Memorandum of Association or Articles of Association under the Public Limited Companies Act, B.E.2535 Article 31 paragraph 1 requires not least than the consent of 75% of shareholders attending the meeting and having rights to vote. Interpretably, the greater than 25% of shareholder's voting rights are sufficient to block the firm's critical activities, including merger, dissolution of the firm, and increase or decrease of the firm's registered capital. Moreover, more than 25% of voting rights has absolute power to carry out a number of important activities in the firm. Likewise the Act, The Stock Exchange of Thailand (SET) classifies a controlling

shareholder, who is a shareholder with direct or indirect voting rights in the firm greater than 25% (SET, 2014). Therefore, in this study, the threshold in cutting higher shareholding by controlling shareholders is set at 10% and 25% of voting rights as scenario to test the first hypothesis. The first hypothesis in this study, stated in alternate form, is the following:

$H_1$: Higher shareholding by controlling shareholders (cut off points equal 10% or 25% of voting rights) has impact on accounting quality.

The results of Wang (2006)'s study show the association between the family firms, which family member is a founder, and a higher earnings quality. Likewise Wang (2006), Kuntisook (2008) states that the alignment effect could be more severe because the founding family firms should protect their family's reputation and pass their firms to new generation. In opposite, Kuntisook (2008) also suggests the entrenchment effect is likely to be more severe when the family firms, which family member is not a founder, less align the interest to minority shareholders because the firms might not take responsibility when the firms are early growth and development. Kiatapiwat (2010) finds the firms which controlled by a family and the government, are associated with both lower and higher earnings quality than the firms without controlling shareholders. Moreover, her study finds the positive relationship between foreign ownership and high earnings quality.

To gain further insight, this study also divides controlling shareholder characteristics into five types: individual or a single family (FAM), a group of two family names (TFAM), the domestic government or a domestic government-related organization (STO), a domestic corporation or a financial institution (COFIN), and a foreign investor or a foreign corporation (FRGN). This study predicts that increasing in single family, two-families, and foreign ownership is associated with high quality of accounting whereas others are associated with

low quality of accounting. The second and third hypotheses are stated in alternate form for testing different types of controlling shareholder:

$H_2$: Different types of controlling shareholder with cutting point at 10% of voting rights have impact on accounting quality.

$H_3$: Different types of controlling shareholder with cutting point at 25% of voting rights have impact on accounting quality.

Morck et al. (1988) propose that there are different incentives in managers with different levels of ownership. La Porta et al. (1998) state that significant threshold of voting rights and most countries mandate disclosure of 10%. Kuntisook (2008) divided the different levels of ownership into 10%–20%, more than 20%–50%, and more than 50% in his study. Similarly to Kuntisook (2008), Wiwattanakantang (2001) and Kiatapiwat (2010) employ also the different levels of voting rights, which are voting rights between 25–50%, 50–75%, and at least 75%, in their studies.

According to the Public Limited Companies Act, B.E.2535, the Act can be implied that 25% of voting rights are sufficient to obstruct revision of Memorandum of Association or Articles of Association or firm's important activities, such as merger, dissolution, increase or decrease a registered capital. More than 50% of voting rights make up the majority. At least 75% of voting rights make up a supermajority for certainly significant determinations in the firm.

However, this study also manipulates the voting rights between 10% and 25% to test the fourth hypothesis in the case that level of cutting point is 10%. Similar to the previous arguments, therefore, this study divides percentage of ownership into four ranges: more than or equal to 10% but less than 25%, more than or equal to 25% but less than 50%, more than or equal to 50% but less than 75%, and more than or equal to 75%, to also tests hypothesis for

different levels of voting rights of controlling shareholders. The fourth hypothesis in this study, stated in alternate form, is the following:

$H_4$: Different levels of ownership have impact on accounting quality.

# CHAPTER 3

# RESEARCH DESIGN

This chapter discusses the data and the research methodologies used to test the hypotheses which have been developed in Chapter 2. Firstly, it aims to present (1) how to choose the sample used in this study mainly from the Stock Exchange of Thailand. Then, this chapter tries to explain how to measure (2) accounting and ownership, (3) controlling shareholders, (4) accounting quality which are the main variables in this study, and finally (5) the model specifications.

## Sample Selection

This study is quantitative study that uses secondary data for public companies listed on the Stock Exchange of Thailand (SET). Firstly, this study starts with identifying firms that were listed on the SET's main market during 2007 to 2013 available from the SET Market Analysis and Reporting Tool (SETSMART) database. The main variables collected from this set of data are voting rights data from 2008 to 2012 and financial data from 2007 to 2013. However, the accounting data of 2013 is used for only the Dechow and Dichev (2002) model because of the data requirement for cash flow from operations at time *t+1*. Because the data set is not of all listed company, the sample in this study excludes the firms in financial industry, property funds, rehabilitation companies, the firms that new listed or delisted in 2007–2013, and the firms that data are not available or incomplete.

The financial firms have their operations and environments differ from other businesses and have different accruals processes (Peasnell et al., 2000). Furthermore, the financial requirement and accounting rules of the firms in financial industry are different for this industry. In addition, financial institutions and insurers are heavily regulated by the Bank of Thailand (BOT) and the Office of Insurance Commission (OIC), and these regulations are totally different from other sectors. The rehabilitation companies have problems with their operations and finances, which lead to negative shareholder's equity, significant decrease in assets, or the cessation of the operation or to be on the brink of cessation of operations (Likitwongkajon, 2015). As a result of this, the rehabilitation companies' financial position and performance may not reflect normal economic circumstance of the companies.

According to the conditions mentioned above, 370 listed firms are selected. Table 1 presents a summary of how the final sample for this study was obtained. The total initial sample was 542 firms, 57 firms in financial industry, 48 firms in property funds, and 14 firms under rehabilitation plans were removed. In addition, 45 firms which are new listed or delisted during 2007 to 2013 and 8 firms that data are not available or incomplete were eliminated for this study as mentioned above. The total sample in each year consisted of 370 firms or 68.27% of the initial sample. Each firm's financial statements that cover the period of five years during 2008 to 2012 are collected. Therefore, the final sample for this study consists of 1,850 firm-years.

**Table 1:** Sample selection

| | No. of firms | % |
|---|---|---|
| SET listed companies' main market* | 542 | 100.00 |
| Firms excluded from the sample: | | |
| Financial industry | 57 | 10.52 |
| Property funds | 48 | 8.86 |
| Rehabilitation firms | 14 | 2.58 |
| New listed or delisted firms during 2007–2013 | 45 | 8.30 |
| Data are not available or incomplete | 8 | 1.48 |
| **Total sample for each year** | **370** | **68.27** |
| **Final sample for this study (5 years)** | **1,850** | |

*SET's listed companies as of April 15, 2014.

The industry categories are classified into seven groups in accordance with the SET definitions, and consist of agriculture and food, consumer products, industrials, property and construction, resources, service, and technology. The number and percentage of firm–years observations by industry can be provided as in table 2. Each industry contains enough observations to control for industry effects in the regressions. Most of the firm–year observations are services (21.88%), property and construction (21.09%), and industrials (19.19%). The list of names of the sample firms is provided appendix A.

**Table 2:** Sample firm by industry and sector as classified by SET

| Industry | Sector | No. in each year | Firm-year observations in each | | | |
|---|---|---|---|---|---|---|
| | | | Sector | | Industry | |
| | | | N | % | N | % |
| (1) Agro and Food Industry | Agribusiness | 14 | 70 | 3.78 | 200 | 10.81 |
| | Food and Beverage | 26 | 130 | 7.03 | | |
| (2) Consumer Products | Fashion | 22 | 110 | 5.95 | 190 | 10.27 |
| | Home and Office Product | 10 | 50 | 2.70 | | |
| | Personal Products and Pharmaceuticals | 6 | 30 | 1.62 | | |
| (3) Industrials | Automotive | 15 | 75 | 4.06 | 355 | 19.19 |
| | Industrial Materials and Machinery | 7 | 35 | 1.89 | | |
| | Paper and Printing Materials | 2 | 10 | 0.54 | | |
| | Petrochemicals and Chemicals | 10 | 50 | 2.70 | | |
| | Packaging | 14 | 70 | 3.78 | | |
| | Steel | 23 | 115 | 6.22 | | |
| (4) Property and Construction | Construction Materials | 18 | 90 | 4.87 | 390 | 21.09 |
| | Property Development | 60 | 300 | 16.22 | | |
| (5) Resource | Energy and Utilities | 25 | 125 | 6.76 | 135 | 7.30 |
| | Mining | 2 | 10 | 0.54 | | |
| (6) Service | Commerce | 13 | 65 | 3.51 | 405 | 21.88 |
| | Health Care Service | 13 | 65 | 3.51 | | |
| | Media and Publishing | 27 | 135 | 7.30 | | |
| | Professional Service | 3 | 15 | 0.81 | | |
| | Tourism and Leisure | 12 | 60 | 3.24 | | |
| | Transportation and Logistics | 13 | 65 | 3.51 | | |
| (7) Technology | Electronic Components | 10 | 50 | 2.70 | 175 | 9.46 |
| | Information and Communication Technology | 25 | 125 | 6.76 | | |
| **Total number of observation** | | **370** | **1,850** | **100.00** | **1,850** | **100.00** |

**Accounting and Ownership Data**

The accounting data is obtained from the companies' annual reports (Form 56-1), submitted annually to Stock Exchange of Thailand and provided on SETSMART. Data on shareholders and ownership for the calculation of voting rights is obtained from two sources: First, the immediate (direct) ownership data at the beginning of 2008 – 2012 for each firm is obtained from SETSMART that provides list of all shareholders owning at least 0.5 percent of shares in each firm. Second, the shareholders and (indirect) ownership data of Thai company limited, non-listed companies, at the beginning of 2008-2012 is obtained from The Business On Line (BOL) database. The BOL company is the sole agent that has a license from the Department of Business Development, Ministry of Commerce of Thailand, to reproduce the accounting and ownership information of all companies registered at the Ministry of Commerce of Thailand. Financial and stock returns data is obtained for 2008-2012 of each firm from SETSMART.

This study is confined to controlling shareholders with only the same family name as identified in the company annual report, their voting rights in the firm are combined and treated as voting rights of a shareholder. It excludes close relationship by blood or marriage with different surname because it is ambiguous and difficult to identify family relationship in Thailand. This study treats the ownership as well as the companies ultimately owned by a single shareholder, foreigners, foreign corporations, domestic companies which have no controlling shareholders.

Voting rights of shareholders are calculated for each firm in 2008 – 2012 samples. This study defines controlling shareholder characteristics as the firms that are owned by shareholders or group of them with more than 10% of voting rights in the firm that is classified as a controlling shareholder. In Thailand, the share structure is very simple, one share equal one vote. Voting rights of

shareholder are calculated by combining direct and indirect ownership of the shareholder in the firm.

**Proxies for Controlling Shareholders**

This study defines and characterizes controlling shareholder characteristics as a shareholder whose combined direct and in direct voting rights in the firm exceed 10%. Due to a significant threshold of votes and most countries mandate disclosure of 10% and usually even lower, as the reason to use 10% cutting point in this work, ownership stakes (La Porta et al., 1998). This study utilizes several measures as below:

1. The first measure of controlling shareholder ownership is the percentage of the firm's voting rights owned by individual or a group that has the same family name at least 10% of voting rights.

2. This study classifies controlling shareholder firms into 5 types as follows:

2.1 A family firm (FAM): the firm that is controlled by individual or a group with only one family name, excluding close relationship by blood or marriage with difference surname.

2.2 Two-families firm (TFAM): the firm that is controlled by individual or a group with two family names that have less than 10% difference of voting rights.

2.3 State firm (STO): the firm that is controlled by the domestic government or a domestic government-related organization.

2.4 Corporation ownership firm (COFIN): the firm that is controlled by a domestic corporation or a financial institution.

2.5 Foreign firm (FRGN): the firm that is controlled by a foreign investor or a foreign corporation.

3. Furthermore, this study divides the ownership level into 10-25%, 25-50%, 50-75% and more than 75% of voting rights.

According to the conditions of classifying controlling shareholder firms mentioned above, table 3 presents the number of controlling shareholder firms classified by type of ownership and year. Types of controlling shareholder are divided into FAM, TFAM, STO, COFIN, and FRGN firms. Among the final sample of 1,850 firm-year observations, 1,782 (96.32%) are controlling shareholder firm-year observations, 1,138 (61.51%) are FAM firm-year observations, 251 (13.57%) are FRGN firm-year observations, 184 (9.95%) are COFIN firm-year observations, 139 (7.51%) are TFAM firm-year observations, and 70 (3.78%) are STO firm-year observations. The number of controlling shareholder firms are 356 (96.22%) in year the 2008, and unimportantly increase to 357 (96.49%) in year the 2012. The number of FAM firms are 222 (60.00%) in year the 2008, and slightly increase to 332 (62.70%) in year the 2012.

**Table 3:** Controlling shareholders and type of ownership at the level of cutting point 10%

| Year | N | CS | | Type of ownership | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | FAM | | TFAM | | STO | | COFIN | | FRGN | |
| | | N | % | N | % | N | % | N | % | N | % | N | % |
| 2008 | 370 | 356 | 96.22 | 222 | 60.00 | 29 | 7.84 | 14 | 3.78 | 40 | 10.81 | 51 | 13.78 |
| 2009 | 370 | 355 | 95.95 | 227 | 61.35 | 24 | 6.49 | 14 | 3.78 | 37 | 10.00 | 53 | 14.32 |
| 2010 | 370 | 356 | 96.22 | 224 | 60.54 | 29 | 7.84 | 14 | 3.78 | 39 | 10.54 | 50 | 13.51 |
| 2011 | 370 | 358 | 96.76 | 233 | 62.97 | 29 | 7.84 | 14 | 3.78 | 34 | 9.19 | 48 | 12.97 |
| 2012 | 370 | 357 | 96.49 | 232 | 62.70 | 28 | 7.57 | 14 | 3.78 | 34 | 9.19 | 49 | 13.24 |
| **Total** | **1,850** | **1,782** | **96.32** | **1,138** | **61.51** | **139** | **7.51** | **70** | **3.78** | **184** | **9.95** | **251** | **13.57** |

In addition, table 4 presents the number of controlling shareholder firms classified by level of voting rights and year. Levels of voting rights are divided into between 10–25%, between 25–50%, between 50–75%, and at least 75%. Among the controlling shareholder firms, of 1,782 firm–year observations, 867 (46.86%) have voting rights between 25%–50%, 556 (30.05%) have voting rights between 50%–75%, 286 (15.46%) have voting rights between 10%–25%, and 73 (3.95%) have voting rights at least 75%. On average, controlling shareholder observations have voting rights 44.11% in year the 2008, and unimportantly decrease to 43.47% in year the 2012.

**Table 4:** Controlling shareholders and level of voting rights at the level of cutting point 10%

| Year | N | CS | | Level of voting rights | | | | | | | | mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 10%≤VR <25% | | 25%≤VR <50% | | 50%≤VR <75% | | VR≥75% | | |
| | | N | % | N | % | N | % | N | % | N | % | |
| 2008 | 370 | 356 | 96.22 | 59 | 15.95 | 167 | 45.14 | 116 | 31.35 | 14 | 3.78 | 44.11 |
| 2009 | 370 | 355 | 95.95 | 59 | 15.95 | 170 | 45.95 | 112 | 30.27 | 14 | 3.78 | 44.37 |
| 2010 | 370 | 356 | 96.22 | 54 | 14.59 | 172 | 46.49 | 115 | 31.08 | 15 | 4.05 | 44.57 |
| 2011 | 370 | 358 | 96.76 | 53 | 14.32 | 180 | 48.65 | 111 | 30.00 | 14 | 3.78 | 44.07 |
| 2012 | 370 | 357 | 96.49 | 61 | 16.49 | 178 | 48.11 | 102 | 27.57 | 16 | 4.32 | 43.47 |
| **Total** | **1,850** | **1,782** | **96.32** | **286** | **15.46** | **867** | **46.86** | **556** | **30.05** | **73** | **3.95** | **44.12** |

However, under Thai public company law, Public Limited Companies Act B.E. 2535 (the Act), the greater than 25% of shareholder's voting rights has absolute power to carry out a number of important activities in the firm that requires less than 25% of the votes. Moreover, 25% of voting rights are sufficient to block the firm's critical activities, including merger, dissolution of the firm, and increase or decrease of the firm's registered capital, that require at least 75% of the votes in the shareholders' meeting. Hence, this study is also

comparative analysis between the firm that has controlling shareholders at the level of cutting point 10% and 25% of voting rights.

According to the law mentioned above, when the level of cutting point is defined at 25%, table 5 presents the number of controlling shareholder firms classified by type of ownership and year. Among the final sample of 1,850 firm-year observations, 1,496 (80.86%) are controlling shareholder firm-year observations, 941 (50.86%) are FAM firm-year observations, 210 (11.35%) are FRGN firm-year observations, 131 (7.08%) are TFAM firm-year observations, 149 (8.05%) are COFIN firm-year observations, and 65 (3.51%) are STO firm-year observations. The number of controlling shareholder firms are 297 (80.27%) in year the 2008, and slightly increase to 305 (82.43%) in year the 2011, but unimportantly decrease to 296 (80.00%) in year the 2012. The number of FAM firms are 186 (50.27%) in year the 2008, and slightly increase to 193 (52.16%) in year the 2011, but decrease to 186 (52.16%), like the year 2008, in year the 2012.

**Table 5:** Controlling shareholders and type of ownership at the level of cutting point 25%

| Year | N | CS | | Type of ownership | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | FAM | | TFAM | | STO | | COFIN | | FRGN | |
| | | N | % | N | % | N | % | N | % | N | % | N | % |
| 2008 | 370 | 297 | 80.27 | 186 | 50.27 | 27 | 7.30 | 13 | 3.51 | 30 | 8.11 | 41 | 11.08 |
| 2009 | 370 | 296 | 80.00 | 188 | 50.81 | 22 | 5.95 | 13 | 3.51 | 30 | 8.11 | 43 | 11.62 |
| 2010 | 370 | 302 | 81.62 | 188 | 50.81 | 27 | 7.30 | 13 | 3.51 | 31 | 8.38 | 43 | 11.62 |
| 2011 | 370 | 305 | 82.43 | 193 | 52.16 | 28 | 7.57 | 13 | 3.51 | 30 | 8.11 | 41 | 11.08 |
| 2012 | 370 | 296 | 80.00 | 186 | 50.27 | 27 | 7.30 | 13 | 3.51 | 28 | 7.57 | 42 | 11.35 |
| **Total** | **1,850** | **1,496** | **80.86** | **941** | **50.86** | **131** | **7.08** | **65** | **3.51** | **149** | **8.05** | **210** | **11.35** |

## Measure of Accounting Quality

This section describes accounting quality measures used in this research. This study focuses on only accruals-based earning quality that has been widely used in prior research. Various accruals-based measures have been used in prior literature to proxy for earning quality. This study employs four different measures as follow:

### 1. Dechow and Dichev model (2002)

The first measure is based on the Dechow and Dichev (2002) accruals quality model (hereafter DD) which has been widely adopted in the literature. The model defines accruals quality as the extent to which working capital accruals map into past, current, and future cash flow from operations. Larger magnitude of the accruals estimation errors implies lower quality of accruals and earnings (Dechow and Dichev, 2002). McNichols (2002) notes that the model's focus on working capital accruals limits its applicability to firms with operations these are shorter-term in nature. Hence, this study examines additional proxies of earnings quality based on estimates of discretionary accruals. To estimate the DD model, first of all, this study calculates total current accruals as:

$$TCA_{it} = (\Delta CA_{it} - \Delta CL_{it}) - (\Delta Cash_{it} - \Delta STD_{it}) - DEP_{it} \quad (1)$$

Where

$TCA_{it}$ = total current accruals for firm $i$ in year $t$;

$\Delta CA_{it}$ = firm $i$'s change in current assets between year $t-1$ and year $t$;

$\Delta CL_{it}$ = firm $i$'s change in current liabilities between year $t-1$ and year $t$;

$\Delta Cash_{it}$ = firm $i$'s change in cash and cash equivalents between year $t-1$ and year $t$;

$\Delta STD_{it}$ = firm $i$'s change in short-term debt between year $t-1$ and year $t$; and

$DEP_{it}$ = firm $i$'s total depreciations in year $t$.

This study then estimates the discretionary part of current accruals as the residual ($\varepsilon_{it}$) from the following regression:

$$\frac{TCA_{it}}{A_{it}} = \beta_0 + \beta_1 \frac{CFO_{i,t-1}}{A_{it}} + \beta_2 \frac{CFO_{i,t}}{A_{it}} + \beta_3 \frac{CFO_{i,t+1}}{A_{it}} + \varepsilon_{it} \quad (2)$$

Where

$A_{it}$ = firm $i$'s average total assets over year $t-1$ and year $t$; and

$CFO_{it}$ = firm $i$'s cash flow from operations in year $t$ from the statement of cash flow.

The coefficients estimated from equation *(2)* are used to calculate firm-specific residual or discretionary accruals ($DA\_DD_{it}$) for each year from the regression as follows:

$$DA\_DD_{it} = \frac{TCA_{it}}{A_{it}} - (\hat{\beta}_0 + \hat{\beta}_1 \frac{CFO_{i,t-1}}{A_{it}} + \hat{\beta}_2 \frac{CFO_{i,t}}{A_{it}} + \hat{\beta}_3 \frac{CFO_{i,t+1}}{A_{it}}) \quad (3)$$

Where

$DA\_DD_{it}$ = firm $i$'s discretionary accruals value in year $t$ from the DD model.

The first measure of accruals quality ($ABDA\_DD_{it}$) is the absolute value the firm's discretionary accruals ($|DA\_DD_{it}|$).

**2. Modified Jones (1991) model (1995)**

The second measure is based on the Jones (1991) model as modified by Dechow et al. (1995) (hereafter MJ). Jones (1991) model relies on the change in revenues and gross property, plant and equipment to partition total

accruals into discretionary and nondiscretionary portion, thus implicitly assuming that revenues are not subject to manipulations. Dechow et al. (1995) believed that management might manipulate revenue recognition of credit sales in the event period. Change in account receivables are then added into the Jones (1991) model only for the event period. Non-discretionary accruals in the estimation period are still derived from the Jones (1991) model. The OLS and time series data are used to estimate the coefficients of the variables. In this study, the second measure of accounting quality, this study defines total accruals as:

$$TA_{it} = AE_{it} - CFO_{it} \tag{4}$$

Where

$TA_{it}$ = total current accruals for firm $i$ in year $t$;

$AE_{it}$ = bottom line net income for firm $i$ in year $t$; and

$CFO_{it}$ = firm $i$'s cash flow from operations in year $t$ from the statement of cash flow.

To estimate the coefficient of MJ, the regression is used as shown below:

$$\frac{TA_{it}}{A_{i,t-1}} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta REV_{it}}{A_{i,t-1}} + \beta_3 \frac{PPE_{it}}{A_{i,t-1}} + \varepsilon_{it} \tag{5}$$

Where

$A_{i,t-1}$ = total assets at the beginning for firm $i$ in year $t$;

$\Delta REV_{it}$ = change in revenue between year $t-1$ and year $t$ for firm $i$; and

$PPE_{it}$ = firm $i$'s net value of property, plant, and equipment in year $t$.

The coefficients estimated in equation *(5)* are then used to estimate firm specific nondiscretionary accruals:

$$NDA_{it} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{(\Delta REV_{it} - \Delta AR_{it})}{A_{i,t-1}} + \beta_3 \frac{PPE_{it}}{A_{i,t-1}} \quad (6)$$

Where

$NDA_{it}$ = firm $i$'s nondiscretionary accruals from MJ in year $t$; and

$\Delta AR_{it}$ = firm $i$'s change in account receivable between year $t-1$ and year $t$.

The firm specific discretionary accruals are then calculated as:

$$DA\_MJ_{it} = \frac{TA_{it}}{A_{i,t-1}} - NDA_{it} \quad (7)$$

Where

$DA\_MJ_{it}$ = firm $i$'s discretionary accruals value in year $t$ from the MJ model.

The second measure of accruals quality ($ABDA\_MJ_{it}$) is the absolute value the firm's discretionary accruals ($|DA\_MJ_{it}|$).

### 3. Yoon, Miller and Jiraporn (2006) model

The third measure is developed from MJ by Yoon et al. (2006) (hereafter YM). Yoon et al. (2006) use discretionary accruals, obtained by subtracting non-discretionary accruals from total accruals, as a proxy to determine the extent of earnings management. Non-discretionary accruals are estimated by using a regression model and total accruals are free from specification errors and relatively easy to use. YM posits that total accruals will normally depend on changes in cash sale revenue, change in cash expenses and some non-cash expenses including depreciation expenses and retirement benefits expenses. To estimate the YM model, this study calculates total accruals

from the equation *(4)*. To estimate the coefficient of YM, the following regression is used:

$$\frac{TA_{it}}{REV_{it}} = \beta_0 + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_2 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_3 \frac{(DEP_{it} + PEN_{it})}{REV_{it}} + \varepsilon_{it} \quad (8)$$

Where

$REV_{it}$ = net sales revenue for firm $i$ in year $t$;

$\Delta REV_{it}$ = change in net sales revenue between year $t-1$ and year $t$ for firm $i$;

$\Delta REC_{it}$ = change in trade receivables between year $t-1$ and year $t$ for firm $i$;

$\Delta EXP_{it}$ = change in sum of cost of goods sold and selling and general administration expenses excluding non-cash expenses between year $t-1$ and year $t$ for firm $i$;

$\Delta PAY_{it}$ = change in trade payables between year $t-1$ and year $t$ for firm $i$;

$DEP_{it}$ = depreciation expenses for firm $i$ in year $t$; and

$PEN_{it}$ = retirement benefit expenses for firm $i$ in year $t$.

The coefficients estimated in equation *(8)* are then used to calculate firm-specific residual or discretionary accruals ($DA\_YM_{it}$) for each year from the regression as follows:

$$DA\_YM_{it} = \frac{TA_{it}}{REV_{it}} - (\beta_0 + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_2 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_3 \frac{(DEP_{it} + PEN_{it})}{REV_{it}}) \quad (9)$$

Where

$DA\_YM_{it}$ = discretionary accruals value for firm $i$ in year $t$ from the YM model.

The third measure of accruals quality ($ABDA\_YM_{it}$) is the absolute value the firm's discretionary accruals ($|DA\_YM_{it}|$).

**4. Adjusted Yoon, Miller and Jiraporn (2006) model**

The fourth measure is based on YM as adjusted by this work (hereafter AY). All terms in this model are scale by net sales revenue to reduce heteroscedasticity problem. Moreover, the depreciation expenses and the retirement benefit expenses represent to non-cash expense term in the YM model, but the AY model also adds the amortization expenses in this term. To estimate the AY model, this work calculates total accruals from the equation *(4)*. To estimate the coefficient of AY, the regression is shown below:

$$\frac{TA_{it}}{REV_{it}} = \beta_1 \frac{1}{REV_{it}} + \beta_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_3 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_4 \frac{(DEAM_{it} + PEN_{it})}{REV_{it}} + \varepsilon_{it} \quad (10)$$

Where

$REV_{it}$ = firm $i$'s net sales revenue in year $t$;

$\Delta REV_{it}$ = firm $i$'s change in net sales revenue between year $t-1$ and year $t$;

$\Delta REC_{it}$ = firm $i$'s change in trade receivables between year $t-1$ and year $t$;

$\Delta EXP_{it}$ = firm $i$'s change in sum of cost of goods sold and selling and general administration expenses excluding non-cash expenses between year $t-1$ and year $t$;

$\Delta PAY_{it}$ = firm $i$'s change in trade payables between year $t-1$ and year $t$;

$DEAM_{it}$ = firm $i$'s depreciation and amortization expenses in year $t$; and

$PEN_{it}$ = firm $i$'s retirement benefit expenses in year $t$.

The coefficients estimated from equation *(10)* are used to calculate firm–specific residual or discretionary accruals ($DA\_AY_{it}$) for each year from the regression as follows:

$$DA\_AY_{it} = \frac{TA_{it}}{REV_{it}} - (\beta_1 \frac{1}{REV_{it}} + \beta_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_3 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_4 \frac{(DEAM_{it} + PEN_{it})}{REV_{it}}) \quad (11)$$

Where

$DA\_AY_{it}$ = firm $i$'s discretionary accruals value in year $t$ from the AY model.

The fourth measure of accruals quality ($ABDA\_AY_{it}$) is the absolute value the firm's discretionary accruals ($|DA\_AY_{it}|$).

The measurement of accounting quality in the prior studies which measures accounting quality by accrual quality, mostly estimates the discretionary or abnormal accrual value by all cross–sectional data. This study questions whether "the abnormal accruals value, which is estimated by all firms from every industry each year, can be the representative of all firms?". Each industry has its specific characteristics, such as business environment, operating characteristics, and business cycle. The different ways of operating business in the industry can lead to different accounting policies, thus, different level of accruals value. For example, in general, the amount of accrual account which is recorded in the retail business, agribusiness, service business, and property and construction business is different. Therefore, controlling industry should be concerned. Moreover, the different years also have the different economic situations and conditions.

As mention above, normal accruals models estimated using all firms observation might not be accurate determination of level of normal and abnormal

accruals for the firm in different industry and year. Hence, this study tries to answer the above-mentioned question by first estimate the coefficient of the DD model, the MJ model, the YM model, and the AY model from equation *(2)*, *(5)*, *(8)*, *(10)*, respectively, by all observations. Then, estimations of all models are controlled by industry and year, but the results of all models report both of industry and year effects. The results which are shown in table 6, confirm this assumption that the estimation of abnormal accruals value by all observations is not appropriate.

**Table 6:** The coefficient value estimated from all models and all observations (Obs=1,850, Time=5)

| | The DD model | | The MJ model | | The YM model | | The AY model | |
|---|---|---|---|---|---|---|---|---|
| $\beta_0$ | 0.0076 | | | | 0.2155 | * | | |
| $\beta_1$ | 0.2602 | *** | 94300.08 | *** | -0.5089 | *** | 7003.34 | * |
| $\beta_2$ | -0.6087 | *** | 0.0522 | *** | 0.4991 | *** | -0.4458 | *** |
| $\beta_3$ | 0.0440 | *** | -0.0467 | ** | -2.9665 | *** | 0.4728 | *** |
| $\beta_4$ | | | | | | | -0.0769 | |
| $\chi^2$ | 663.15 | *** | 199.60 | *** | 222.79 | *** | 113.18 | *** |
| Overall $R^2$ | 0.2521 | | | | 0.1039 | | | |
| Industry dummies | Yes | | Yes | | Yes | | Yes | |
| Industry effect | Yes | | Yes | | No | | No | |
| IND_2 | -0.0304 | ** | -0.0819 | ** | -0.0292 | | 0.0404 | |
| IND_3 | -0.0244 | ** | -0.0617 | ** | -0.0969 | | 0.0136 | |
| IND_4 | -0.0100 | | 0.0123 | | 0.1163 | | 0.1494 | |
| IND_5 | -0.0345 | ** | -0.0238 | | 0.0388 | | 0.0982 | |
| IND_6 | -0.0267 | ** | -0.0984 | *** | -0.0467 | | -0.0833 | |
| IND_7 | -0.0288 | ** | -0.0705 | ** | -0.1637 | | -0.0650 | |
| Year dummies | Yes | | Yes | | Yes | | Yes | |
| Year effect | Yes | | Yes | | Yes | | Yes | |
| 2009 | 0.0019 | | -0.0420 | ** | -0.1373 | * | -0.1529 | ** |
| 2010 | 0.0072 | | 0.0073 | | -0.0143 | | -0.0383 | |
| 2011 | 0.0247 | *** | -0.0105 | | -0.0372 | | -0.0740 | |
| 2012 | 0.0426 | *** | -0.0033 | | -0.0224 | | 0.0379 | |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 6 presents the coefficient value which estimated from the DD model, the MJ model, the YM model, and the AY model, respectively, by all observations. The results of the equation (2), (5), (8), and (10) are shown in column "the DD model", "the YM model", and "the AY model", respectively. The signs of coefficient of all models are followed in related theories. The predictions of all models are controlled by industry and year. The predictions of the DD and MJ models found both industry and year effects, but the estimations the YM and AY models found only year effect.

Therefore, this study also checks robustness by different methodologies with alternative estimation of discretionary accruals by each industry and by each year. The coefficient values which estimated by all methodologies from the DD model, the MJ model, the YM model, and the AY model are presentd in Panel A in table B-1, B-2, B-3, and B-4 in appendix B, respectively.

**Research Model**

Following Kiatapiwat (2010), her study finds the decreasing in market-to-book ratio and the increasing in return on assets, firm size, and firm age are strongly associated with high quality of earning. The increasing in operating cash flow is related to high quality of earning, but significant in some methodology. Furthermore, the results of her research show that the decreasing in sales growth, volatility, and length of operating cycle and the increasing in firm leverage are insignificantly associated with high quality of earning.

In this study, the control variables are separated into firm characteristics and business operation characteristics. Firm characteristics control variables consist of market-to-book ratio (MTB), return on assets (ROA), firm leverage (LEV), firm size (SIZE), and firm age (AGE). Business operation characteristics control variables consist of sales growth (SGRWT), cash flow from operations

(CFO), volatility (VOL), and length of operating cycle (LOPC). The summary of definition of control variables and expected sign is shown in table 7.

**Table 7:** The summary of definition of control variables and expected sign

| Variables | Definition | Expected sign* |
|---|---|---|
| MTB | MTB is ratio of market value of equity to book value of equity at the beginning of the year. | + |
| ROA | ROA is return on assets. Scaled decile rank of income before extraordinary items divided by total assets at the beginning of the year. | – |
| LEV | LEV is leverage ratio. Scaled decile rank of total debts divided by total assets at the beginning of the year. | – |
| SIZE | SIZE is firm's size. Natural log of total assets at the beginning of the year. | – |
| AGE | AGE is firm's age. Natural log of number of years sinece the firms's establishment. | – |
| SGRWT | Sales growth of firms is calculated from the change in sales between current year and last year divided by sales in last year. | + |
| CFO | CFO is operting cash flow taken from the statement of cash flows. | + |
| VOL | VOL is volatility that calculated as the standard diviation of monthy stock returns over the previous 12 months. | + |
| LOPC | Length of operting cycle is used in natural log form. | + |

*The sign is opposite to the meaning of the relationship with accounting quality

This work uses the following three panel regression with random effect models to test the functional relationship between controlling shareholders and accounting quality. Equation (12) is used to test the hypothesis $H_1$. Equation (13) is used to test the hypotheses $H_2$ and $H_3$. The hypothesis $H_4$ is tested by equation (14).

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it} \quad (12)$$

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it} \quad (13)$$

$$AQ_{it} = \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR25\_50_{i,t-1} + \beta_3 VR50\_75_{i,t-1} + \beta_4 VR75_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 ROA_{it} + \beta_7 LEV_{i,t-1} + \beta_8 SIZE_{i,t-1} + \beta_9 AGE_{it} + \beta_{10} SGRWT_{it} + \beta_{11} CFO_{it} + \beta_{12} VOL_{it} + \beta_{13} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it} \quad (14)$$

Where

$AQ_{it}$ = the accounting quality value or the absolute value of abnormal accrual measure for firm $i$ in year $t$ ($ABDA\_DD_{it}$, $ABDA\_MJ_{it}$, $ABDA\_YM_{it}$, and $ABDA\_AY_{it}$);

$CS_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$ has a controlling shareholder at the beginning of year $t$, 0 otherwise;

$FAM_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder at the beginning of year $t$ is an individual or a family, 0 otherwise;

$TFAM_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder at the beginning of year $t$ is twin families, 0 otherwise;

$STO_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder at the beginning of year $t$ is the domestic government or a domestic government-related organization, 0 otherwise;

$COFIN_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder at the beginning of year $t$ is a domestic corporation or financial institutions, 0 otherwise;

$FRGN_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder at the beginning of year $t$ is a foreign investor, 0 otherwise;

$WHD_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$ does not have a controlling shareholder at the beginning of year $t$, 0 otherwise;

$VR10\_25_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder has more than or equal to 10% but less than 25% of voting rights in the firm at the beginning of year $t$, 0 otherwise. This variable will only be used in the case that level of cutting point is 10%;

$VR25\_50_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder has more than or equal to 25% but less than 50% of voting rights in the firm at the beginning of year $t$, 0 otherwise;

$VR50\_75_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder has more than or equal to 50% but less than 75% of voting rights in the firm at the beginning of year $t$, 0 otherwise;

$VR75_{i,t-1}$ = is a dummy variable that is equal 1 if firm $i$'s controlling shareholder has at least 75% of voting rights in the firm at the beginning of year $t$, 0 otherwise;

$MTB_{i,t-1}$ = firm $i$'s market-to-book ratio, calculated as the ratio of market value of equity to book value of equity at the beginning of year $t$;

$ROA_{it}$ = firm $i$'s return on assets in year $t$, calculated as the ratio of year $t$ net income before extraordinary items to year $t-1$ total assets;

$LEV_{i,t-1}$ = firm $i$'s leverage, calculated as the ratio of total debts to total assets at the beginning of year $t$;

$SIZE_{i,t-1}$ = firm $i$'s size, measured as the natural log form of total assets at the beginning of year $t$;

$AGE_{it}$ = firm $i$'s age in year $t$, measured as the natural log of number of years since the firm's establishment;

$SGRWT_{it}$ = firm $i$'s sales growth in year $t$, calculated as the change in sales between year $t$ and $t-1$ divided by sales in year $t-1$;

$CFO_{it}$ = firm $i$'s total cash flow from operations in year $t$ taken from the statement of cash flows;

$VOL_{it}$ = firm $i$'s volatility in year $t$, calculated as the standard deviation of monthly stock returns over the previous 12 months;

$LOPC_{it}$ = firm $i$'s length of operating cycle in year $t$, calculated as 360/(sales/average accounts receivable) + 360/(cost of goods sold/average inventory), in natural log form;

$Industry_{it}$ = the industry dummies based on industry classification by the Stock Exchange of Thailand, equal 1 if firm $i$ is listed in that industry group, 0 otherwise;

$Year_{it}$ = firm $i$'s year;

$\beta_1, \beta_2, .., \beta_{15}$ = the firm–specific parameters;

$\varepsilon_{it}$ = firm $i$'s error term in year $t$;

$i$ = 1, 2,..., N (N= 370), firm index; and

$t$ = 1, 2,..., T (T= 5), year index.

# CHAPTER 4

# RESULTS

This chapter reports the results of this study based on the research design discussed in the previous chapter. This section begins with the descriptive statistics that are divided into the firm characteristics of the sample companies, the information on controlling shareholders and their voting rights, and the discretionary accruals variables. Then, this chapter is followed by the results of the empirical results, and finally the effects of little majority and large majority on accounting quality.

## Descriptive Statistics

The characteristics of all firms have wide ranges of distribution. Not only firm sizes (total assets, total sales, total equites, and operating cash flow) but also firm ratios (sale growth rate, net income ratio, return on equities, return on assets, leverage ratio, and debt ratio) has extensive ranges of distribution. The firm characteristics can be as provided in table 8.

The mean and median of total assets (SIZE) are 17.73 and 3.18 billion baht, respectively. The range of distribution was also wide with a minimum of 86.66 million baht to a maximum of 1,629.51 billion baht. Moreover, the mean and median of total sales (SALE) are 18.509 and 2.77 billion baht with a minimum of 3.98 million baht and a maximum of 2,793.83 billion baht. Similar to total assets and total sales, the mean and median of cash flow from operating (CFO) are 1.73 billion and 204.29 million baht with a minimum of –9.92 billion

baht and a maximum of 177.29 billion baht. The firms that are selected in this study obviously have distinction in size, total sales and cash flow from operating.

The mean and median of book value of equity (BVE) are 8.25 billion baht and 1.67 billion baht with a minimum of –15.72 billion baht and a maximum of 729.90 billion baht. Likewise, the mean and median of market value of equity (BVE) are 12.99 billion baht and 1.62 billion baht with a maximum of 1.04 trillion baht.

The mean and median of total sale growth (SGRWT) are 12.57% and 6.11% and the distribution of total sale growth is found to be wide across firms with a minimum of –98.27% and a maximum of 1,537.24%. NIR is net income ratio, calcuted by net income to total sales. the mean and median of net income ratio (NIR) are 4.34% and 5.58% with a minimum of –1,355.51% and a maximum of 3,392.97%.

The distribution of return on equities (ROE) is found to be wide across firms with a minimum of –11,930.16% and a maximum of 821.91%, and the mean and median are 0.54% and 9.89%. Similar to ROE, the mean and median of return on assets (ROA) are 5.62% and 5.44% with a minimum of –162.27% and a maximum of 657.13%. The mean and median of leverage ratio (LEV) are 25.12% and 22.49% with a maximum of 585.65%. The mean and median of debt ratio (DTA) are 44.64% and 44.41% with a minimum of 0.38% and a maximum of 414.73%.

**Table 8:** Descriptive statistics on the firm characteristics (1,850 Obs. and 5 years)

| | Min | Max | Mean | Median | SD | Percentile | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 25 | 75 | 90 |
| SIZE | 86.66 | 1,629,511.03 | 17,726.08 | 3,182.05 | 76,266.59 | 1,354.76 | 10,038.06 | 31,138.59 |
| SALE | 3.98 | 2,793,833.06 | 18,509.33 | 2,774.74 | 119,234.59 | 1,034.86 | 7,800.52 | 21,945.70 |
| CFO | -9,915.16 | 177,285.74 | 1,728.66 | 204.29 | 9,663.13 | 26.67 | 741.35 | 2,728.85 |
| BVE | -15,722.88 | 729,896.08 | 8,245.43 | 1,672.90 | 34,621.31 | 749.44 | 5,215.63 | 15,697.56 |
| MVE | 0 | 1,036,647.03 | 12,995.83 | 1,622.34 | 58,842.28 | 613.81 | 5,978.25 | 19,126.07 |
| SGRWT | -98.27 | 1,537.24 | 12.57 | 6.11 | 65.55 | -6.76 | 18.47 | 40.91 |
| NIR | -1,355.51 | 3,392.97 | 4.34 | 5.58 | 105.04 | 1.20 | 12.06 | 21.27 |
| ROE | -11,930.16 | 821.91 | 0.54 | 9.89 | 289.29 | 1.95 | 18.54 | 29.49 |
| ROA | -162.27 | 657.13 | 5.62 | 5.44 | 19.26 | 1.03 | 10.33 | 16.41 |
| LEV | 0 | 585.65 | 25.12 | 22.49 | 25.14 | 4.03 | 40.30 | 53.21 |
| DTA | 0.38 | 414.73 | 44.64 | 44.41 | 26.96 | 25.35 | 60.66 | 72.63 |

**Table 9:** Descriptive statistics on controlling shareholders and voting rights at the level of cutting point 10%

| | N | % | % of voting rights | | |
|---|---|---|---|---|---|
| | | | min | mean | max |
| Total firms | 1,850 | 100.00 | | | |
| Firm with no controlling shareholder | 68 | 3.68 | | | |
| Firm with a controlling shareholder | 1,782 | 96.32 | 10.11 | 44.12 | 95.76 |
| Composition by type of controlling shareholders: | | | | | |
| Family or individual | 1,138 | 61.51 | 10.11 | 43.37 | 95.76 |
| Two-families | 139 | 7.51 | 20.78 | 44.23 | 75.18 |
| Government | 70 | 3.78 | 18.34 | 47.40 | 77.28 |
| Corporation or financial institutions | 184 | 9.95 | 10.76 | 44.99 | 94.11 |
| Foreign investor | 251 | 13.57 | 10.83 | 45.90 | 94.92 |

Table 9 shows some information on type of shareholders composing the 2008-2012 sample, along with information on voting rights of controlling shareholders. 1,782 sample firms or approximately 96.32% of total sample

firms have controlling shareholder more than 10% of voting rights with average, minimum, and maximum voting rights in the firm of 44.12%, 10.11%, and 95.76%, respectively. Approximately 61.51% of these firms are controlled by Thai individuals or family, with average voting rights of 43.37% in the firm. Approximately 13.57% of these firms are controlled by foreign investors, with average voting rights of 45.90% in the firm.

**Table 10:** Descriptive statistics on levels of voting rights by types of controlling shareholder

| | Level of voting rights (VR) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 10%≤VR<25% | | 25%≤VR<50% | | 50%≤VR<75% | | VR≥75% | |
| | N | % | N | % | N | % | N | % |
| Family or individual | 197 | 68.88 | 545 | 62.86 | 363 | 65.29 | 33 | 45.20 |
| Two-families | 8 | 2.80 | 87 | 10.04 | 39 | 7.01 | 5 | 6.85 |
| Government | 5 | 1.75 | 39 | 4.50 | 21 | 3.78 | 5 | 6.85 |
| Corporation or financial institutions | 35 | 12.24 | 87 | 10.03 | 49 | 8.81 | 13 | 17.81 |
| Foreign investor | 41 | 14.33 | 109 | 12.57 | 84 | 15.11 | 17 | 23.29 |
| **Total** | **286** | **100.00** | **867** | **100.00** | **556** | **100.00** | **73** | **100.00** |

A level of voting rights, classified by types of controlling shareholder, is as presented in table 10. As shown in table 10, 73 out of 1,782 total controlling shareholders have at least 75% voting rights in the firm and most of total controlling shareholders, 867 firm-year observations, have between 25-50%. Moreover, 33 of 1,138 family controlling shareholders have at least 75% voting rights in the firm.

Panel A in table B-1, B-2, B-3, and B-4 in appendix B present the coefficient value which estimated from the DD model, the MJ model, the YM model, and the AY model, respectively. The coefficient signs of all models that estimated by all observations are followed in related theories. From table B-1,

B-2, B-3, and B-4, panel B presents the sign of discretionary accruals variables and panel C shows the absolute value of discretionary accruals variables which estimated from the DD model, the MJ model, the YM model, and the AY model, respectively. Table B-5 in appendix B summarizes the descriptive statistics of the absolute value of discretionary accruals variables which estimated from the all models.

**Results with Ownership**

Table 11 presents the results of the equation (12) of all discretionary accrual models (the DD model, the MJ model, the YM model, and the AY model) on controlling shareholders (CS) and accounting quality, which $AQ_{it}$ was estimated by all observations (ABDA_DD1, ABDA_MJ1, ABDA_YM1, and ABDA_AY1). This table also shows the comparative result between the voting rights level of cutting point 10% and 25%. Although the coefficients of all models on CS at level of cutting point 10% are not significant and cannot predict the direction of relationship, at level of cutting point 25% they are negative and significant in all models. The negative sign refers that the firm has high accounting quality, on the other hand the positive sign means that the firm has low accounting quality. Therefore, from table 10, the results imply the firms which have controlling shareholders with the voting rights more than or equal to 25% have high quality of accounting. While, the accounting quality of the firms which have controlling shareholders with the voting rights more than or equal to 10% are unpredicable by this methodology.

**Table 11 :** The associations of controlling shareholders with accounting quality (Obs=1,850, Time=5) (Equation 12, Hyphotheses $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | The DD model (ABDA_DD1) | | The MJ model (ABDA_MJ1) | | The YM model (ABDA_YM1) | | The AY model (ABDA_AY1) | |
|---|---|---|---|---|---|---|---|---|
| | Level of cutting point | | Level of cutting point | | Level of cutting point | | Level of cutting point | |
| | 10% | 25% | 10% | 25% | 10% | 25% | 10% | 25% |
| CS | -0.0006 | -0.0182*** | 0.0064 | -0.0607*** | -0.0528 | -0.2259*** | 0.0324 | -0.2159*** |
| **Firm Characteristics:** | | | | | | | | |
| MTB | 0.0012*** | 0.0012*** | 0.0066*** | 0.0067*** | 0.0100*** | 0.0101*** | 0.0089*** | 0.0089*** |
| ROA | -0.0442*** | -0.0434*** | 0.3101*** | 0.3128*** | 2.5895*** | 2.5940*** | 2.3741*** | 2.3805*** |
| LEV | 0.0013 | 0.0009 | 0.2295*** | 0.2271*** | 1.5757*** | 1.5702*** | 1.8241*** | 1.8142*** |
| SIZE | -0.0130*** | -0.0127*** | -0.0500*** | -0.0490*** | -0.1079*** | -0.1048*** | -0.1207*** | -0.1168*** |
| AGE | -0.0043 | -0.0047 | 0.0191 | 0.0178 | 0.0531 | 0.0489 | 0.0422 | 0.0371 |
| **Business Operation Characteristics:** | | | | | | | | |
| SGRWT | 0.0092*** | 0.0095*** | 0.0351*** | 0.0358*** | -0.1341*** | -0.1318*** | -0.1404*** | -0.1380*** |
| CFO | -0.0005** | -0.0005** | -0.0013** | -0.0011** | -0.0104*** | -0.0100*** | -0.0122*** | -0.0118*** |
| VOL | 0.0002 | 0.0002 | 0.0001 | 0.0001 | -0.0001 | -0.0001 | 0.0002 | 0.0002 |
| LOPC | 0.0013 | 0.0015 | 0.0054 | 0.0063 | 0.1097*** | 0.1126*** | 0.1200*** | 0.1220*** |
| Intercept | 0.3046*** | 0.3137*** | 0.7213*** | 0.7601*** | 0.7862 | 0.8632* | 0.8321 | 0.9796* |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 125.95*** | 135.39*** | 538.25*** | 556.07*** | 1460.00*** | 1481.01*** | 1402.81*** | 1418.73*** |
| Overall $R^2$ | 0.0867 | 0.0949 | 0.2619 | 0.2682 | 0.3875 | 0.3918 | 0.3695 | 0.3750 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

With respect to the voting rights level of cutting point at 10%, this work expands the methodology with alternative estimation of discretionary accruals by each industry (ABDA_DD2, ABDA_MJ2, ABDA_YM2, and ABDA_AY2) and each year (ABDA_DD3, ABDA_MJ3, ABDA_YM3, and ABDA_AY3). The results of the equation (12) with different methodologies of all models as show in table 12. However, the coefficients of all methodologies and models on CS are still insignificant and different direction.

Furthermore, on the voting rights level of cutting point at 25%, this research also tests robustness by the different methodologies similar to above. The results of all methodologies and models as present in table 13 obviously describe the relationship between accounting quality and controlling shareholders. The firms with controlling shareholders have higher accounting quality than without controlling shareholder.

Turning to the firm characteristics control variables, the significantly positive coefficient on MTB and the significantly negative coefficient on SIZE are similarly shown in table 11, 12, and 13 in all methodologies and models. The coefficients on ROA and LEV are significantly positive in all models except the regression using absolute values of discretionary accruals from the DD model (ABDA_DD).

For business operation characteristics control variables, the coefficient on CFO is significantly negative in all methodologies and models. The coefficient on SGRWT is significantly positive in the regression using absolute values of abnormal accruals from the DD and MJ models, and significantly negative in the regression using absolute values of abnormal accruals from the YM and AY models. The coefficient on LOPC is positive in all methodologies and models, but significant in the regression using absolute values of abnormal accruals from the YM and AY models only.

**Table 12:** The associations of controlling shareholders at the level of cutting point 10% with accounting quality (Obs=1,850, Time=5) (Equation 12, Hyphothesis $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| CS | −0.001 | −0.010 | −0.004 | 0.006 | 0.022 | −0.007 | −0.053 | −0.037 | 0.007 | 0.032 | −0.006 | 0.015 |
| **Firm Characteristics:** | | | | | | | | | | | | |
| MTB | 0.001*** | 0.001*** | 0.001*** | 0.007*** | 0.002*** | 0.007*** | 0.010*** | 0.009*** | 0.009*** | 0.009*** | 0.005** | 0.003 |
| ROA | −0.044*** | −0.034*** | −0.017 | 0.310*** | −0.093*** | 0.383*** | 2.590*** | 2.350*** | 2.378*** | 2.374*** | 1.623*** | 1.030*** |
| LEV | 0.001 | 0.008 | 0.017* | 0.230*** | 0.024 | 0.196*** | 1.576*** | 1.573*** | 1.527*** | 1.824*** | 1.458*** | 1.029*** |
| SIZE | −0.013*** | −0.012*** | −0.012*** | −0.050*** | −0.055*** | −0.032*** | −0.108*** | −0.115*** | −0.106*** | −0.121*** | −0.109*** | −0.100*** |
| AGE | −0.004 | −0.002 | −0.006 | 0.019 | 0.017 | 0.019 | 0.053 | 0.061 | 0.040 | 0.042 | 0.057 | 0.068 |
| **Business Operation Characteristics:** | | | | | | | | | | | | |
| SGRWT | 0.009*** | 0.009*** | 0.007** | 0.035*** | 0.022*** | 0.038*** | −0.134*** | −0.151*** | −0.130*** | −0.140*** | −0.161*** | −0.060** |
| CFO | −0.001** | −0.001** | −0.001** | −0.001** | −0.001** | −0.003*** | −0.010*** | −0.007*** | −0.007*** | −0.012*** | −0.010*** | −0.007*** |
| VOL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | −0.000 | −0.000 | −0.000 | 0.000 | 0.000 | 0.001 |
| LOPC | 0.001 | 0.001 | 0.001 | 0.005 | −0.008 | 0.010 | 0.110*** | 0.074*** | 0.087*** | 0.120*** | 0.131*** | 0.106*** |
| Intercept | 0.305*** | 0.283*** | 0.296*** | 0.721*** | 0.922*** | 0.422*** | 0.786 | 0.959** | 0.879* | 0.832 | 0.676 | 0.731* |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 125.95*** | 116.36*** | 101.87*** | 538.25*** | 327.97*** | 636.44*** | 1460.00*** | 1824.44*** | 1728.47*** | 1402.81*** | 1141.86*** | 543.51*** |
| Overall $R^2$ | 0.087 | 0.084 | 0.079 | 0.262 | 0.255 | 0.289 | 0.388 | 0.426 | 0.409 | 0.370 | 0.327 | 0.226 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

**Table 13:** The associations of controlling shareholders at the level of cutting point 25% with accounting quality (Obs=1,850, Time=5) (Equation 12, Hyphothesis $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| CS | −0.018*** | −0.018*** | −0.015** | −0.061*** | −0.040*** | −0.050*** | −0.226*** | −0.238*** | −0.238*** | −0.216*** | −0.163*** | −0.164*** |
| **Firm Characteristics:** | | | | | | | | | | | | |
| MTB | 0.001*** | 0.001*** | 0.001*** | 0.007*** | 0.002*** | 0.007*** | 0.010*** | 0.009*** | 0.009*** | 0.009*** | 0.005** | 0.003 |
| ROA | −0.043*** | −0.034*** | −0.017 | 0.313*** | −0.092*** | 0.385*** | 2.594*** | 2.353*** | 2.383*** | 2.381*** | 1.626*** | 1.035*** |
| LEV | 0.001 | 0.008 | 0.017 | 0.227*** | 0.021 | 0.194*** | 1.570*** | 1.568*** | 1.519*** | 1.814*** | 1.453*** | 1.022*** |
| SIZE | −0.013*** | −0.012*** | −0.012*** | −0.049*** | −0.054*** | −0.031*** | −0.105*** | −0.112*** | −0.102*** | −0.117*** | −0.107*** | −0.097*** |
| AGE | −0.005 | −0.003 | −0.007 | 0.018 | 0.016 | 0.018 | 0.049 | 0.056 | 0.035 | 0.037 | 0.054 | 0.064 |
| **Business Operation Characteristics:** | | | | | | | | | | | | |
| SGRWT | 0.010*** | 0.010*** | 0.007** | 0.036*** | 0.023*** | 0.038*** | −0.132*** | −0.148*** | −0.127*** | −0.138*** | −0.159*** | −0.059** |
| CFO | −0.001** | −0.000* | −0.001** | −0.001** | −0.001** | −0.003*** | −0.010*** | −0.007*** | −0.007*** | −0.012*** | −0.009*** | −0.007*** |
| VOL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | −0.000 | −0.000 | −0.000 | 0.000 | 0.000 | 0.001 |
| LOPC | 0.002 | 0.001 | 0.001 | 0.006 | −0.008 | 0.011* | 0.113*** | 0.077*** | 0.090*** | 0.122*** | 0.133*** | 0.108*** |
| Intercept | 0.314*** | 0.285*** | 0.300*** | 0.760*** | 0.967*** | 0.444*** | 0.863* | 1.059** | 1.015** | 0.980* | 0.761* | 0.832* |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 135.39*** | 126.45*** | 109.30*** | 556.07*** | 334.57*** | 650.84*** | 1481.01*** | 1859.11*** | 1760.81*** | 1418.73*** | 1154.34*** | 552.58*** |
| Overall $R^2$ | 0.095 | 0.091 | 0.089 | 0.268 | 0.251 | 0.294 | 0.392 | 0.432 | 0.416 | 0.375 | 0.331 | 0.231 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

Panel A in table B-6, B-7, B-8, and B-9 in appendix B show the results of the equation (12) of the DD model, the MJ model, the YM model, and the AY model, respectively. These tables indicate the consequences both the level of cutting point at 10% and 25% with all alternative methodologies on controlling shareholders and accounting quality.

A summary of this part, the results are strong especially for the firms whose controlling shareholders' voting rights are more than or equal to 25% have higher accounting quality than their counterparts with no controlling shareholder. For the firms with controlling shareholders' voting rights are more than or equal to 10%, this study cannot absolutely decide the associations.

**Results with Types of Ownership**

The results of the equation (13) on the relation between accounting quality and controlling shareholder types at the level of cutting point 10% are presented in table 14. This table shows the insignificantly negative coefficient on FAM in the regression using absolute values of discretionary accruals from the DD, YM, and AY models and the insignificantly positive coefficient on FAM in the regression using absolute values of discretionary accruals from the MJ model. The coefficient on TFAM is negative and insignificant in the regression using absolute values of discretionary accruals from the DD and MJ models, but positive and insignificant in the regression using absolute values of discretionary accruals from the YM and AY models. The results show the insignificantly negative coefficients on STO and FRGN in the regression using absolute values of abnormal accruals from only the DD. In addition, the coefficient on STO is positive in the regression using absolute values of abnormal accruals from the MJ, YM, and AY models, but significant in the regression using absolute values of abnormal accruals from the MJ model only. Furthermore, the coefficient on FRGN is positive in the regression using absolute values of abnormal accruals

from the MJ, YM, and AY models, but significant in the regression using absolute values of abnormal accruals from the YM and MJ models. For the coefficient on COFIN, the relation and direction are unpredicable by this methodology.

The results of the equation (13) on the relation between quality of accounting and types of controlling shareholders at the level of cutting point 25% are shown in table 15. This table presents the significantly negative coefficient on FAM in all methodologies and models. The coefficients on TFAM and FRGN are negative in all methodologies and models, but significant in the regression using absolute values of discretionary accruals from the DD and MJ models only. The coefficient on COFIN is negative in all methodologies and models, but significant in the regression using absolute values of discretionary accruals from the MJ model only. Lastly, the coefficient on STO is negative in the regression using absolute values of discretionary accruals from the DD model and positive in the regression using absolute values of discretionary accruals from the MJ, YM, and AY models, but insignificant at all.

Turning to the firm characteristics control variables, the coefficient on MTB is positive and significant, and the coefficient on SIZE is negative and significant in all methodologies and models. The coefficients on ROA and LEV are positive and significant in all models except the regression using absolute values of discretionary accruals from the DD model (ABDA_DD).

For business operation characteristics control variables, the coefficient on CFO is negative and sinificant in all methodologies and models. The coefficient on SGRWT is positive and significant in the regression using absolute values of abnormal accruals from the DD and MJ models, and sinificantly negative in the regression using absolute values of abnormal accruals from the YM and AY models. Lastly, the coefficient on LOPC is positive in all methodologies and models, but significant in the regression using absolute values of abnormal accruals from the YM and AY models only.

**Table 14:** The associations of controlling shareholder types at level of cutting point 10% with accounting quality (Obs=1,850, Time=5) (Equation 13, Hyphothesis $H_2$)

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| FAM | 0.001 | −0.009 | −0.003 | 0.002 | 0.014 | −0.010 | −0.133 | −0.101 | −0.062 | −0.068 | −0.068 | −0.047 |
| TFAM | −0.010 | −0.016 | −0.014 | −0.015 | 0.019 | −0.018 | 0.112 | −0.013 | 0.002 | 0.312* | 0.085 | 0.080 |
| STO | −0.001 | −0.011 | −0.006 | 0.091* | 0.125** | 0.046 | 0.276 | 0.256 | 0.322 | 0.384 | 0.298 | 0.320 |
| COFIN | 0.006 | −0.005 | 0.002 | 0.010 | 0.033 | −0.007 | −0.042 | −0.002 | 0.045 | 0.038 | −0.000 | 0.026 |
| FRGN | −0.005 | −0.013 | −0.008 | 0.032 | 0.042 | 0.014 | 0.178 | 0.211 | 0.295** | 0.281* | 0.221 | 0.249* |
| **Firm Characteristics:** | | | | | | | | | | | | |
| MTB | 0.001*** | 0.001*** | 0.001*** | 0.007*** | 0.002*** | 0.007*** | 0.009*** | 0.009*** | 0.008*** | 0.008*** | 0.004 | 0.002 |
| ROA | −0.045*** | −0.035*** | −0.018 | 0.304*** | −0.099*** | 0.379*** | 2.567*** | 2.312*** | 2.332*** | 2.368*** | 1.594*** | 0.997*** |
| LEV | 0.003 | 0.009 | 0.019* | 0.236*** | 0.028 | 0.200*** | 1.565*** | 1.576*** | 1.534*** | 1.801*** | 1.453*** | 1.033*** |
| SIZE | −0.013*** | −0.012*** | −0.012*** | −0.054*** | −0.058*** | −0.034*** | −0.123*** | −0.134*** | −0.128*** | −0.134*** | −0.125*** | −0.117*** |
| AGE | −0.005 | −0.003 | −0.007 | 0.018 | 0.017 | 0.018 | 0.052 | 0.053 | 0.030 | 0.045 | 0.054 | 0.063 |
| **Business Operation Characteristics:** | | | | | | | | | | | | |
| SGRWT | 0.009*** | 0.009*** | 0.007** | 0.036*** | 0.022*** | 0.038*** | −0.133*** | −0.149*** | −0.128*** | −0.140*** | −0.160*** | −0.059** |
| CFO | −0.001** | −0.001** | −0.001** | −0.001** | −0.001** | −0.003*** | −0.011*** | −0.007*** | −0.007*** | −0.012*** | −0.010*** | −0.007*** |
| VOL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | −0.000 | −0.000 | −0.000 | 0.000 | 0.000 | 0.001 |
| LOPC | 0.001 | 0.001 | 0.001 | 0.005 | −0.008 | 0.010 | 0.107*** | 0.072*** | 0.084*** | 0.118*** | 0.128*** | 0.103*** |
| Intercept | 0.307*** | 0.284*** | 0.298*** | 0.791*** | 0.979*** | 0.468*** | 1.043** | 1.271*** | 1.251** | 1.055* | 0.935** | 1.025** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 127.57*** | 116.81*** | 103.52*** | 548.03*** | 339.35*** | 641.52*** | 1486.14*** | 1847.49*** | 1757.13*** | 1442.44*** | 1162.16*** | 563.67*** |
| Overall $R^2$ | 0.088 | 0.085 | 0.081 | 0.266 | 0.260 | 0.291 | 0.397 | 0.436 | 0.422 | 0.381 | 0.337 | 0.237 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

**Table 15:** The associations of controlling shareholder types at level of cutting point 25% with accounting quality (Obs=1,850, Time=5) (Equation 13, Hyphothesis $H_3$)

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| FAM | −0.018*** | −0.018*** | −0.015** | −0.070*** | −0.050*** | −0.057*** | −0.329*** | −0.309*** | −0.309*** | −0.346*** | −0.237*** | −0.228*** |
| TFAM | −0.022** | −0.019* | −0.019* | −0.068** | −0.027 | −0.051* | 0.018 | −0.129 | −0.151 | 0.150 | −0.011 | −0.029 |
| STO | −0.008 | −0.012 | −0.010 | 0.044 | 0.089* | 0.018 | 0.162 | 0.105 | 0.137 | 0.188 | 0.192 | 0.209 |
| COFIN | −0.008 | −0.012 | −0.007 | −0.044 | −0.045* | −0.042* | −0.171 | −0.166 | −0.152 | −0.169 | −0.144 | −0.137 |
| FRGN | −0.025** | −0.024** | −0.023** | −0.050** | −0.018 | −0.044* | −0.118 | −0.124 | −0.110 | −0.134 | −0.059 | −0.099 |
| **Firm Characteristics:** | | | | | | | | | | | | |
| MTB | 0.001*** | 0.001*** | 0.001*** | 0.007*** | 0.002*** | 0.007*** | 0.009*** | 0.009*** | 0.008*** | 0.008*** | 0.004* | 0.002 |
| ROA | −0.044*** | −0.034*** | −0.017 | 0.311*** | −0.094*** | 0.384*** | 2.607*** | 2.353*** | 2.380*** | 2.405*** | 1.631*** | 1.039*** |
| LEV | 0.002 | 0.008 | 0.018* | 0.232*** | 0.023 | 0.197*** | 1.560*** | 1.570*** | 1.524*** | 1.792*** | 1.448*** | 1.021*** |
| SIZE | −0.013*** | −0.012*** | −0.012*** | −0.053*** | −0.058*** | −0.034*** | −0.116*** | −0.125*** | −0.118*** | −0.124*** | −0.118*** | −0.108*** |
| AGE | −0.005 | −0.003 | −0.007 | 0.016 | 0.016 | 0.017 | 0.050 | 0.051 | 0.027 | 0.043 | 0.053 | 0.064 |
| **Business Operation Characteristics:** | | | | | | | | | | | | |
| SGRWT | 0.010*** | 0.010*** | 0.007** | 0.036*** | 0.023*** | 0.039*** | −0.132*** | −0.148*** | −0.126*** | −0.139*** | −0.159*** | −0.058** |
| CFO | −0.001** | −0.000* | −0.001** | −0.001** | −0.001** | −0.003*** | −0.010*** | −0.007*** | −0.007*** | −0.011*** | −0.009*** | −0.007*** |
| VOL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | −0.000 | −0.000 | −0.000 | 0.000 | 0.000 | 0.001 |
| LOPC | 0.002 | 0.001 | 0.002 | 0.007 | −0.007 | 0.011* | 0.117*** | 0.080*** | 0.093*** | 0.128*** | 0.136*** | 0.111*** |
| Intercept | 0.316*** | 0.285*** | 0.300*** | 0.824*** | 1.026*** | 0.483*** | 1.024** | 1.256*** | 1.249*** | 1.079** | 0.933** | 0.997** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 137.20*** | 127.02*** | 110.92*** | 566.33*** | 347.98*** | 654.97*** | 1508.89*** | 1874.65*** | 1775.47*** | 1462.37*** | 1169.71*** | 564.60*** |
| Overall $R^2$ | 0.096 | 0.092 | 0.087 | 0.272 | 0.258 | 0.296 | 0.399 | 0.438 | 0.424 | 0.383 | 0.338 | 0.236 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

Panel B in table B-6, B-7, B-8, and B-9 in appendix B show the results of the equation (13) of the DD model, the MJ model, the YM model, and the AY model, respectively. These tables indicate the results both the levels of cutting point at 10% and 25% with all alternative methodologies on types of controlling shareholders and accounting quality.

In summary, the results in this part show strong evidence when the controlling shareholders have voting rights more than 25% in the firms. The firms with a controlling shaeholder, especially a single family, two-families, and foreigner controlling shareholders, are associated with higher quality of accounting than the firms with no controlling shareholders. The firms with corporate controlling shareholder are uncertainly associated with high accounting quality. Moreover, the firms with government controlling shareholder, seemingly, are associated with low accounting quality, however, this report cannot absolutely determine in this associations. On the opposite side, controlling shareholders with more than 10% of voting rights, the results cannot clearly predict the association. Hence, the next parts of this chapter will explain the result only at the level of cutting point 25%.

**Results with Levels of Ownership**

Table 16 presents the results of the equation (14) which are regressed on the different levels of voting rights of controlling shareholders and accounting quality. The results show that the coefficient on VR25_50 is significantly negative in all methodologies and models. Similar to VR25_50, the coefficient on VR50_75 is also negative and significant in all methodologies and models. The coefficient on VR75 is significantly negatively only related to ABDA_DD, the absolute values of discretionary accruals from the DD model. The coefficients on VR75 in the regression using absolute values of discretionary accruals from the MJ, YM, and AY models, however, are negative but insignificant.

**Table 16:** The associations of voting rights level with accounting quality (Obs=1,850, Time=5) (Equation 14, Hyphothesis $H_4$)

$$AQ_{it} = \beta_0 + \beta_1 VR25\_50_{i,t-1} + \beta_2 VR50\_75_{i,t-1} + \beta_3 VR75_{i,t-1} + \beta_4 MTB_{i,t-1} + \beta_5 ROA_{it} + \beta_6 LEV_{i,t-1} + \beta_7 SIZE_{i,t-1} + \beta_8 AGE_{it} + \beta_9 SGRWT_{it} + \beta_{10} CFO_{it} + \beta_{11} VOL_{it} + \beta_{12} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it}$$

| Variables | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| VR25_50 | −0.017** | −0.016** | −0.014** | −0.063*** | −0.039*** | −0.051*** | −0.257*** | −0.248*** | −0.250*** | −0.248*** | −0.159** | −0.175*** |
| VR50_75 | −0.019** | −0.019*** | −0.015** | −0.057*** | −0.043** | −0.050*** | −0.140* | −0.208*** | −0.202*** | −0.125 | −0.174** | −0.138* |
| VR75 | −0.037*** | −0.042*** | −0.036*** | −0.060* | −0.038 | −0.054 | −0.220 | −0.220 | −0.231 | −0.184 | −0.182 | −0.132 |
| **Firm Characteristics:** | | | | | | | | | | | | |
| MTB | 0.001*** | 0.001*** | 0.001*** | 0.007*** | 0.002*** | 0.007*** | 0.010*** | 0.009*** | 0.009*** | 0.009*** | 0.005** | 0.003 |
| ROA | −0.042*** | −0.032*** | −0.016 | 0.312*** | −0.092*** | 0.385*** | 2.581*** | 2.348*** | 2.378*** | 2.366*** | 1.627*** | 1.030*** |
| LEV | −0.000 | 0.007 | 0.016 | 0.228*** | 0.020 | 0.194*** | 1.586*** | 1.574*** | 1.525*** | 1.831*** | 1.452*** | 1.028*** |
| SIZE | −0.013*** | −0.012*** | −0.012*** | −0.049*** | −0.054*** | −0.031*** | −0.107*** | −0.113*** | −0.103*** | −0.120*** | −0.107*** | −0.098*** |
| AGE | −0.005 | −0.003 | −0.007 | 0.018 | 0.016 | 0.018 | 0.055 | 0.059 | 0.037 | 0.043 | 0.053 | 0.066 |
| **Business Operation Characteristics:** | | | | | | | | | | | | |
| SGRWT | 0.010*** | 0.009*** | 0.007** | 0.036*** | 0.023*** | 0.038*** | −0.131*** | −0.148*** | −0.127*** | −0.137*** | −0.160*** | −0.058** |
| CFO | −0.001** | −0.000** | −0.001** | −0.001* | −0.001** | −0.003*** | −0.010*** | −0.007*** | −0.007*** | −0.012*** | −0.009*** | −0.007*** |
| VOL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | −0.000 | −0.000 | −0.000 | 0.000 | 0.000 | 0.001 |
| LOPC | 0.002 | 0.001 | 0.001 | 0.006 | −0.008 | 0.011* | 0.112*** | 0.077*** | 0.090*** | 0.122*** | 0.133*** | 0.108*** |
| Intercept | 0.312*** | 0.282*** | 0.298*** | 0.761*** | 0.967*** | 0.444*** | 0.867* | 1.061** | 1.016** | 0.985* | 0.760* | 0.836* |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 137.99*** | 131.53*** | 112.80*** | 555.03*** | 334.22*** | 649.43*** | 1486.36*** | 1859.00*** | 1761.25*** | 1424.07*** | 1153.73*** | 552.54*** |
| Overall $R^2$ | 0.097 | 0.095 | 0.088 | 0.268 | 0.251 | 0.294 | 0.392 | 0.433 | 0.416 | 0.375 | 0.331 | 0.232 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

With respect to the firm characteristics control variables, table 16 shows the significantly positive coefficient on MTB and the significantly negative coefficient on SIZE in all methodologies and models. ROA is positive and significant in the regression using absolute values of discretionary accruals from the MJ, YM, and AY models, but negative and significant in the regression using absolute values of discretionary accruals from the DD model only. The coefficient on LEV is significantly positive in the regression using absolute values of discretionary accruals from the MJ, YM, and AY models, but significantly negative in the regression using absolute values of discretionary accruals from the DD model only.

For business operation characteristics control variables, all methodologies and models, the coefficient on CFO is significantly negative. The coefficient on SGRWT is significantly positive in the regression using absolute values of abnormal accruals from the DD and MJ models, and sinificantly negative in the regression using absolute values of abnormal accruals from the YM and AY models. At last, the coefficient on LOPC is positive in all methodologies and models, but significant in the regression using absolute values of abnormal accruals from the YM and AY models only.

Panel C in table B-6, B-7, B-8, and B-9 in appendix B present the results of the equation (14) of the DD model, the MJ model, the YM model, and the AY model, respectively. These tables show the results both the level of cutting point at 10% and 25% with all alternative methodologies on level of voting rights and accounting quality.

In brief for this part, the results suggest that the firms with a controlling shareholder, especially those with voting rights more than and equal to 25% but less than 75%, are associated with higher quality of accounting than their counterparts without a controlling shareholder. Seemingly, the firms with a controlling shareholder with voting rights more than 75% are also associated

with high accounting quality. For the reason that the sample firms which a controlling shareholder with voting rights more than 75% are tiny, approximately 3.95% of all observations, this research lightly summarize in this relationship.

**Results with voting power at the two ends: VR10_25 versus VR75**

This part presents the analysis to gain further insight into the results from the main empirical tests. It demonstrates an analysis on the effects of different levels of voting power which are divided into more than and equal to 10% but less than 25% (VR10_25) and more than 75% (VR75) on accounting quality.

According to the discussion in chapter 2 and 3, the ownership with voting rights more than 10% are much enough to mandate disclosure of the firms (La Porta et al., 1998). The results shown in table 12 and 14, nevertheless, cannot strongly imply the association between the firms which have controlling shareholders with the voting rights more than or equal to 10% and quality of accounting. However, the Act requires more than 25% of the voting rights for sufficient power to block the important activities in the firms. On the other hand, the Act requires at least 75% of the voting rights for absolute power to complete the important activities in the firms. It is predictable the controlling shareholders with at least 75% of the voting rights have a supermajority for certainly significant judgments in the firms.

Therefore, this study examines the relationship of voting rights levels (VR10_25 and VR75) on the accounting quality to concentrate on this point. This research employs the following panel regression random effect models:

$$\begin{aligned} AQ_{it} = {} & \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR75_{i,t-1} + \beta_3 MTB_{i,t-1} + \beta_4 ROA_{it} \\ & + \beta_5 LEV_{i,t-1} + \beta_6 SIZE_{i,t-1} + \beta_7 AGE_{it} + \beta_8 SGRWT_{it} + \beta_9 CFO_{it} \\ & + \beta_{10} VOL_{it} + \beta_{11} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it} \end{aligned}$$

*(15)*

Where

$AQ_{it}$ = the accounting quality value or the absolute value of abnormal accrual measure for firm $i$ in year $t$ ($ABDA\_DD_{it}$, $ABDA\_MJ_{it}$, $ABDA\_YM_{it}$, and $ABDA\_AY_{it}$);

$VR10\_25_{i,t-1}$ = a dummy variable that is equal 1 if firm $i$'s controlling shareholder has more than or equal to 10% but less than 25% of voting rights in the firm at the beginning of year $t$, 0 otherwise. This variable will only be used in the case that level of cutting point is 10%;

$VR75_{i,t-1}$ = is a dummy variable that is equal 1 if firm $i$'s controlling shareholder has at least 75% of voting rights in the firm at the beginning of year $t$, 0 otherwise;

$MTB_{i,t-1}$ = firm $i$'s market-to-book ratio, calculated as the ratio of market value of equity to book value of equity at the beginning of year $t$;

$ROA_{it}$ = firm $i$'s return on assets in year $t$, calculated as the ratio of year $t$ net income before extraordinary items to year $t-1$ total assets;

$LEV_{i,t-1}$ = firm $i$'s leverage, calculated as the ratio of total debt to total assets at the beginning of year $t$;

$SIZE_{i,t-1}$ = firm $i$'s size, measured as the natural log form of total assets at the beginning of year $t$;

$AGE_{it}$ = firm $i$'s age in year $t$, measured as the natural log of number of years since the firm's establishment;

$SGRWT_{it}$ = firm $i$'s sales growth in year $t$, calculated as the change in sales between year $t$ and $t-1$ divided by sales in year $t-1$;

$CFO_{it}$ = firm $i$'s total cash flow from operations in year $t$ taken from the statement of cash flows;

$VOL_{it}$ = firm $i$'s volatility in year $t$, calculated as the standard deviation of monthly stock returns over the previous 12 months;

$LOPC_{it}$ = firm $i$'s length of operating cycle in year $t$, calculated as 360/(sales/average accounts receivable) + 360/(cost of goods sold/average inventory), in natural log form;

$Industry_{it}$ = the industry dummies based on industry classification by the Stock Exchange of Thailand, equal 1 if firm $i$ is listed in that industry group, 0 otherwise;

$Year_{it}$ = firm $i$'s year;

$\beta_1, \beta_2, .., \beta_{15}$ = the firm–specific parameters;

$\varepsilon_{it}$ = firm $i$'s error term in year $t$;

$i$ = 1, 2,..., N (N= 370), firm index; and

$t$ = 1, 2,..., T (T= 5), year index.

The results of the equation (15) on the relation between quality of accounting and different levels of voting rights are shown in table 17. The results show that the coefficient on VR10_25 is significantly positive in all methodologies and models. On the other side, similarly to the results in table 16, the coefficient on VR75 is significantly negatively only related to ABDA_DD, the absolute values of discretionary accruals from the DD model. The coefficients on VR75 in the regression using absolute values of discretionary accruals from the MJ, YM, and AY models are negative but insignificant.

**Table 17:** The effects of voting power on accounting quality (Obs=1,850, Time=5) (Equation 15)

$$AQ_{it} = \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR75_{i,t-1} + \beta_3 MTB_{i,t-1} + \beta_4 ROA_{it} + \beta_5 LEV_{i,t-1} + \beta_6 SIZE_{i,t-1} + \beta_7 AGE_{it} + \beta_8 SGRWT_{it} + \beta_9 CFO_{it} + \beta_{10} VOL_{it} + \beta_{11} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it}$$

| Variables | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| VR10_25 | 0.020*** | 0.017*** | 0.015** | 0.071*** | 0.050*** | 0.056*** | 0.227*** | 0.242*** | 0.258*** | 0.243*** | 0.172*** | 0.184*** |
| VR75 | −0.0194 | −0.025** | −0.022* | −0.001 | 0.004 | −0.005 | −0.032 | 0.000 | −0.012 | −0.008 | −0.017 | 0.021 |
| **Firm Characteristics:** | | | | | | | | | | | | |
| MTB | 0.001*** | 0.001*** | 0.001*** | 0.007*** | 0.002*** | 0.007*** | 0.010*** | 0.009*** | 0.009*** | 0.009*** | 0.005** | 0.003 |
| ROA | −0.043*** | −0.034*** | −0.017 | 0.309*** | −0.092*** | 0.382*** | 2.590*** | 2.348*** | 2.379*** | 2.376*** | 1.623*** | 1.031*** |
| LEV | 0.001 | 0.008 | 0.017 | 0.230*** | 0.021 | 0.196*** | 1.579*** | 1.578*** | 1.527*** | 1.824*** | 1.459*** | 1.029*** |
| SIZE | −0.013*** | −0.012*** | −0.012*** | −0.050*** | −0.054*** | −0.031*** | −0.107*** | −0.114*** | −0.104*** | −0.119*** | −0.108*** | −0.098*** |
| AGE | −0.005 | −0.003 | −0.007 | 0.018 | 0.016 | 0.018 | 0.051 | 0.059 | 0.037 | 0.039 | 0.055 | 0.066 |
| **Business Operation Characteristics:** | | | | | | | | | | | | |
| SGRWT | 0.010*** | 0.009*** | 0.007** | 0.036*** | 0.023*** | 0.038*** | −0.132*** | −0.148*** | −0.127*** | −0.137*** | −0.159*** | −0.058** |
| CFO | −0.001** | −0.001** | −0.001** | −0.001** | −0.001** | −0.003*** | −0.010*** | −0.007*** | −0.007*** | −0.012*** | −0.009*** | −0.007*** |
| VOL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | −0.000 | 0.000 | −0.000 | 0.000 | 0.000 | 0.001 |
| LOPC | 0.002 | 0.001 | 0.001 | 0.007 | −0.008 | 0.011* | 0.114*** | 0.079*** | 0.092*** | 0.124*** | 0.134*** | 0.109*** |
| Intercept | 0.296*** | 0.268*** | 0.286*** | 0.706*** | 0.928*** | 0.400*** | 0.660 | 0.846* | 0.794* | 0.779 | 0.611 | 0.680 |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 137.88*** | 128.84*** | 111.86*** | 557.29*** | 338.39*** | 649.21*** | 1481.36*** | 1861.78*** | 1766.66*** | 1422.94*** | 1155.71*** | 553.74*** |
| Overall $R^2$ | 0.096 | 0.092 | 0.087 | 0.268 | 0.250 | 0.293 | 0.389 | 0.428 | 0.412 | 0.373 | 0.329 | 0.229 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

In brief, the results in this part are obvious for the firms with a controlling shareholder which has voting rights more than and equal to 10% but less than 25% are associated with low quality of accounting. Moreover, the results confirm a briefing in the previous part that the firms with a controlling shareholder with voting rights more than 75% are associated with high accounting quality.

# CHAPTER 5

# CONCLUSIONS

This chapter discusses the results in this study. This section starts with discussion and conclusion, and is followed by limitations and future study.

## Discussion and Conclusion

The main purpose of this study is to investigate the relationship of controlling shareholder characteristics on accounting quality. The quality of accounting in this study is only focused on absolute discretionary accruals from the DD (2002), the MJ (1995), the YM (2006), and the AY (2016) models. The discretionary accruals values are estimated not only by all observations, but also by each industry and each year for checking robustness. The sample firms in this work are panel data of 370 Thai listed companies, which cover the periods from 2008 to 2012 with a total of 1,850 firm-year observations.

Table 18 presents the summary results of hypothesis testing, the results show that the greater ownership, especially in the FAM, TFAM and FRGN firms, is associated with more quality of accounting. Such findings are consistent with high accounting quality as a means of addressing the alignment effect and the stewardship theory. The controlling shareholders with family ownership are likely to relinquish short-term benefit from being less quality of accounting because they have the incentive to transfer their business to next generations and to protect the family's prestige. However, from the results, the family firms are associated with high quality of accounting when the controlling shareholders

have the high ownership or the much voting rights enough to block or to complete the important activities in the firms.

**Table 18:** Summary results of hypothesis testing

| Hypothesis no. | Variables | Voting rights level of cutting point | Coef. sign | Theory support | Level | Ref. table |
|---|---|---|---|---|---|---|
| $H_1$ | CS | 10% | +/– | –No– | | C–2 |
| | CS | 25% | – | Alignment and Stewardship | *** | C–3 |
| $H_2$ | FAM | 10% | – | –No– | | C–4 |
| | TFAM | | +/– | –No– | | C–4 |
| | STO | | +/– | –No– | | C–4 |
| | COFIN | | + | –No– | | C–4 |
| | FRGN | | +/– | –No– | | C–4 |
| $H_3$ | FAM | 25% | – | Alignment and Stewardship | *** | C–5 |
| | TFAM | | – | | ** | C–5 |
| | FRGN | | – | | ** | C–5 |
| | STO | 25% | +/– | –No– | | C–5 |
| | COFIN | | – | –No– | | C–5 |
| $H_4$ | VR10_25 | | + | Entrenchment | *** | C–11 |
| | VR25_50 | | – | Alignment and Stewardship | *** | C–6 |
| | VR50_75 | | – | | *** | C–6 |
| | VR75 | | – | | *** | C–6 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

Furthermore, this study also investigates the relationship of voting rights levels on accounting quality. The findings are that the controlling shareholders with voting rights more than and equal to 10% but less than 25% are associated with low quality of accounting. This result is addressed to the evidence of entrenchment effect. There are several possible reasons to explain this result. First, with respect to the Public Limited Companies Act, B.E.2535, this level of ownership is not sufficient power to block the important activities,

including firm's merger, dissolution, increase or decrease registered capital. Then, the controlling shareholders which are less ownership probably have motivation to opportunistically manage higher earning, conceal true performances and their private benefits, and expropriate wealth from minority shareholders.

On the opposite side, this work finds that controlling shareholders with voting rights more than and equal to 25% are associated with high quality of accounting to confirm alignment effect and stewardship theory. The one of probably reasons of this result is that the controlling shareholders with higher ownership possess special knowledge and have the objective of long-term presence. In addition, the shareholders with more than 25% of voting rights have lawfully sufficient authority to carry out a number of various activities in the firms.

Turning to the discretionary accruals model, the results in the regression which use absolute value of abnormal accruals from the DD model are generally different from the other models. It is possible that the DD model is not suitable to use for Thai firms. Wysocki (2005) noted that the DD model is dominated by the negative contemporaneous relationship between cash flow and accruals. The results of Wysocki (2005) show that a strong negative accruals and cash flow relationship is associated with less quality of accounting in US and international firms. Eventually, each different country has many different factors which could effect to the accounting quality and the measurement.

According to four example firms in chapter 1, table 19 exhibits their discretionary or abnormal accruals values. The abnormal accruals values of firm A and firm B from all models in the accused year (2009) are higher than other years. Moreover, the abnormal accruals values of firm C and firm D fluctuate more, especially the values of firm C from the YM and AY models. Therefore, changing in ownership structure is a signal to have earnings management, which lead to be low accrual quality and low accounting quality.

**Table 19:** The discretionary or abnormal accruals values of four example firms

| Example Firms / Year | The DD Model | | | The MJ Model | | | The YM Model | | | The AY Model | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DA_DD1 | DA_DD2 | DA_DD3 | DA_MJ1 | DA_MJ2 | DA_MJ3 | DA_YM1 | DA_YM2 | DA_YM3 | DA_AY1 | DA_AY2 | DA_AY3 |
| Mean | 0.0000 | 0.0000 | 0.0000 | −0.0622 | −0.0377 | −0.0109 | 0.0000 | 0.0000 | 0.0000 | 0.0047 | 0.0867 | 0.0278 |
| Firm A: | | | | | | | | | | | | |
| 2008 | −0.0928 | −0.1010 | −0.0884 | −0.0965 | −0.0862 | −0.0017 | −0.1277 | −0.1128 | −0.2163 | −0.1493 | −0.0849 | 0.2174 |
| 2009 | −0.2783 | −0.2529 | −0.2862 | −0.2130 | −0.1941 | −0.1795 | −0.6349 | −0.5086 | −0.6855 | −0.6526 | −0.4904 | −0.6006 |
| 2010 | −0.0498 | −0.0427 | −0.0570 | −0.1140 | −0.1027 | −0.0460 | −0.0206 | −0.1804 | −0.2838 | −0.0437 | −0.1716 | −0.1455 |
| 2011 | −0.0980 | −0.1034 | −0.0928 | −0.0329 | −0.0215 | −0.0172 | 0.0634 | −0.0363 | 0.0131 | 0.0482 | −0.0275 | −0.0327 |
| 2012 | −0.0234 | −0.0075 | −0.0087 | −0.0094 | 0.0113 | 0.0251 | −0.1811 | −0.1021 | 0.0234 | −0.3435 | −0.0871 | 0.2680 |
| Firm B: | | | | | | | | | | | | |
| 2008 | −0.0850 | −0.0859 | −0.0805 | −0.2524 | −0.2427 | −0.1110 | −0.3212 | −0.3284 | −0.4066 | −0.3493 | −0.3158 | −0.1937 |
| 2009 | −0.2719 | −0.2422 | −0.2761 | −0.2028 | −0.1895 | −0.1703 | −0.7987 | −0.6389 | −0.7145 | −0.8219 | −0.6231 | −0.6455 |
| 2010 | −0.0607 | −0.0548 | −0.0673 | −0.1905 | −0.1809 | −0.1289 | −0.4234 | −0.5020 | −0.5412 | −0.4579 | −0.4921 | −0.3826 |
| 2011 | −0.0876 | −0.0938 | −0.0828 | −0.0515 | −0.0423 | −0.0388 | 0.2931 | 0.0066 | −0.0613 | 0.2240 | 0.0163 | −0.4186 |
| 2012 | −0.0259 | −0.0116 | −0.0135 | −0.0637 | −0.0459 | −0.0340 | −0.4421 | −0.3314 | −0.4897 | −0.6726 | −0.3149 | −0.1194 |
| Firm C: | | | | | | | | | | | | |
| 2008 | −0.4793 | −0.4659 | −0.4522 | −0.4660 | −0.5265 | −0.4064 | −0.8981 | −2.8922 | −2.9349 | −1.2005 | −2.2999 | −2.2531 |
| 2009 | −0.0596 | −0.0759 | −0.0490 | −0.1596 | −0.3092 | −0.0658 | −0.5949 | 1.0200 | −0.0746 | −1.0897 | 0.9261 | −0.1480 |
| 2010 | −0.1028 | −0.1208 | −0.0813 | −0.3228 | −0.5070 | −0.2955 | −5.3316 | −2.6569 | −3.9598 | −7.0606 | −3.2873 | −4.3147 |
| 2011 | −0.1076 | −0.1067 | −0.0822 | −0.3867 | −0.6429 | −0.2884 | −7.5820 | −6.2513 | −5.2811 | −11.8610 | −10.3228 | −11.6619 |
| 2012 | −0.0900 | −0.1084 | −0.0747 | −0.3067 | −0.6009 | −0.2155 | −4.3364 | −5.1545 | −3.4520 | −9.3679 | −10.7052 | −5.7932 |
| Firm D: | | | | | | | | | | | | |
| 2008 | 0.1838 | 0.2100 | 0.3034 | −0.1873 | 0.3328 | −0.1377 | 0.2513 | 0.3561 | 0.3719 | 0.2222 | 0.3298 | −1.9113 |
| 2009 | −0.1958 | −0.1620 | −0.2154 | −0.5967 | −0.2672 | −0.1439 | −0.3178 | −0.2752 | −0.3311 | −0.3215 | −0.3019 | −0.5056 |
| 2010 | −0.2643 | −0.2803 | −0.3205 | −0.3655 | −0.1137 | −0.5419 | −0.0474 | −0.0415 | −0.1037 | 0.0406 | −0.0480 | −0.1073 |
| 2011 | 0.3659 | 0.3516 | 0.3582 | −0.1998 | 0.0437 | 0.0809 | −0.0512 | 0.0106 | −0.1984 | 0.0795 | 0.0052 | 0.1619 |
| 2012 | −0.6685 | −0.6426 | −0.6404 | −0.6398 | −0.3454 | −0.2992 | −0.1603 | −0.1273 | 0.3010 | −0.0411 | −0.1355 | 0.1877 |

## Limitations and Future Study

This study has several important limitations that need to be addressed. First, the accounting quality in this study is only determined by accruals quality which is predicted from the absolute value of discretionary accruals from the differently four models. Second, this study is focused on one country which allows for data on ultimate ownership more than for cross-country. Third, the controlling shareholders in this study are determined by only the same family name. It excludes close relationship by blood or marriage with different surname because of difficulty to identify family relationship in Thailand. Fourth, the ownership in this work is treated as well as the firms ultimately owned by a single shareholder, foreigners, foreign corporations, domestic companies without controlling shareholders. Fifth, this research is examined only voting rights of controlling shareholders and types of ownership. Lastly, the financial data in this study is collected from 2008 to 2012. This particular period is of the change in Thai Accounting Standard and IFRSs adoption in Thailand.

With respect to the several limitations, they provide some opportunities for future study. First, additional measures of accounting quality suggested in prior studies such as earning persistence, predictability, reliability, relevance, timeliness, conservatism, and smoothness could be investigated to provide further insight. Second, the data collection could be extended to more than 10 years for different methodology such as time series analysis which divided into pre and post IFRSs adoption periods, and expanded to cover cash-flow rights of controlling shareholders. Third, the further study could be comparisons among other Asian countries. Fourth, the results of this study could be extended by studying the effect of accounting quality to firm values. Fifth, the comparative behavior of discretionary accruals value between negative and positive sign could be added to the further study. Finally, which discretionary accruals models is the most appropriation to use for Thailand.

# APPENDIXS

# APPENDIX A

# LIST OF NAMES OF THE SAMPLE FIRMS

**Table A-1:** List of names of the sample firms

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 1 | AGRO/AGRI | ASIAN | ASIAN SEAFOODS COLDSTORAGE PUBLIC COMPANY LIMITED |
| 2 | AGRO/AGRI | CHOTI | KIANG HUAT SEA GULL TRADING FROZEN FOOD PUBLIC COMPANY LIMITED |
| 3 | AGRO/AGRI | CM | CHIANGMAI FROZEN FOODS PUBLIC COMPANY LIMITED |
| 4 | AGRO/AGRI | CPI | CHUMPORN PALM OIL INDUSTRY PUBLIC COMPANY LIMITED |
| 5 | AGRO/AGRI | EE | ETERNAL ENERGY PUBLIC COMPANY LIMITED |
| 6 | AGRO/AGRI | GFPT | GFPT PUBLIC COMPANY LIMITED |
| 7 | AGRO/AGRI | LEE | LEE FEED MILL PUBLIC COMPANY LIMITED |
| 8 | AGRO/AGRI | PRG | PATUM RICE MILL AND GRANARY PUBLIC COMPANY LIMTED |
| 9 | AGRO/AGRI | STA | SRI TRANG AGRO-INDUSTRY PUBLIC COMPANY LIMITED |
| 10 | AGRO/AGRI | TLUXE | THAILUXE ENTERPRISES PUBLIC COMPANY LIMITED |
| 11 | AGRO/AGRI | TRS | TRANG SEAFOOD PRODUCTS PUBLIC COMPANY LIMITED |
| 12 | AGRO/AGRI | TRUBB | THAI RUBBER LATEX CORPORATION (THAILAND) PUBLIC COMPANY LIMITED |
| 13 | AGRO/AGRI | UPOIC | UNITED PALM OIL INDUSTRY PUBLIC COMPANY LIMITED |
| 14 | AGRO/AGRI | UVAN | UNIVANICH PALM OIL PUBLIC COMPANY LIMITED |
| 15 | AGRO/FOOD | APURE | AGRIPURE HOLDINGS PUBLIC COMPANY LIMITED |
| 16 | AGRO/FOOD | CFRESH | SEAFRESH INDUSTRY PUBLIC COMPANY LIMITED |
| 17 | AGRO/FOOD | CPF | CHAROEN POKPHAND FOODS PUBLIC COMPANY LIMITED |
| 18 | AGRO/FOOD | F&D | FOOD AND DRINKS PUBLIC COMPANY LIMITED |
| 19 | AGRO/FOOD | HTC | HAAD THIP PUBLIC COMPANY LIMITED |
| 20 | AGRO/FOOD | KSL | KHON KAEN SUGAR INDUSTRY PUBLIC COMPANY LIMITED |
| 21 | AGRO/FOOD | LST | LAM SOON (THAILAND) PUBLIC COMPANY LIMITED |
| 22 | AGRO/FOOD | MALEE | MALEE SAMPRAN PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 23 | AGRO/FOOD | MINT | MINOR INTERNATIONAL PUBLIC COMPANY LIMITED |
| 24 | AGRO/FOOD | OISHI | OISHI GROUP PUBLIC COMPANY LIMITED |
| 25 | AGRO/FOOD | PB | PRESIDENT BAKERY PUBLIC COMPANY LIMITED |
| 26 | AGRO/FOOD | PM | PREMIER MARKETING PUBLIC COMPANY LIMITED |
| 27 | AGRO/FOOD | PR | PRESIDENT RICE PRODUCTS PUBLIC COMPANY LIMITED |
| 28 | AGRO/FOOD | SAUCE | THAITHEPAROS PUBLIC COMPANY LIMITED |
| 29 | AGRO/FOOD | SFP | SIAM FOOD PRODUCTS PUBLIC COMPANY LIMITED |
| 30 | AGRO/FOOD | SNP | S & P SYNDICATE PUBLIC COMPANY LIMITED |
| 31 | AGRO/FOOD | SORKON | S. KHONKAEN FOODS PUBLIC COMPANY LIMITED |
| 32 | AGRO/FOOD | SSC | SERMSUK PUBLIC COMPANY LIMITED |
| 33 | AGRO/FOOD | SSF | SURAPON FOODS PUBLIC COMPANY LIMITED |
| 34 | AGRO/FOOD | SST | SUB SRI THAI PUBLIC COMPANY LIMITED |
| 35 | AGRO/FOOD | TC | TROPICAL CANNING (THAILAND) PUBLIC COMPANY LIMITED |
| 36 | AGRO/FOOD | TF | THAI PRESIDENT FOODS PUBLIC COMPANY LIMITED |
| 37 | AGRO/FOOD | TIPCO | TIPCO FOODS PUBLIC COMPANY LIMITED |
| 38 | AGRO/FOOD | TUF | THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED |
| 39 | AGRO/FOOD | TVO | THAI VEGETABLE OIL PUBLIC COMPANY LIMITED |
| 40 | AGRO/FOOD | TWFP | THAI WAH FOOD PRODUCTS PUBLIC COMPANY LIMITED |
| 41 | CONSUMP/FASHION | AFC | ASIA FIBER PUBLIC COMPANY LIMITED |
| 42 | CONSUMP/FASHION | BNC | THE BANGKOK NYLON PUBLIC COMPANY LIMITED |
| 43 | CONSUMP/FASHION | BTNC | BOUTIQUE NEWCITY PUBLIC COMPANY LIMITED |
| 44 | CONSUMP/FASHION | CPH | CASTLE PEAK HOLDINGS PUBLIC COMPANY LIMITED |
| 45 | CONSUMP/FASHION | CPL | C.P.L. GROUP PUBLIC COMPANY LIMITED |
| 46 | CONSUMP/FASHION | ICC | I.C.C. INTERNATIONAL PUBLIC COMPANY LIMITED |
| 47 | CONSUMP/FASHION | LTX | LUCKYTEX (THAILAND) PUBLIC COMPANY LIMITED |
| 48 | CONSUMP/FASHION | NC | NEWCITY (BANGKOK) PUBLIC COMPANY LIMITED |
| 49 | CONSUMP/FASHION | PAF | PAN ASIA FOOTWEAR PUBLIC COMPANY LIMITED |
| 50 | CONSUMP/FASHION | PG | PEOPLE'S GARMENT PUBLIC COMPANY LIMITED |
| 51 | CONSUMP/FASHION | PRANDA | PRANDA JEWELRY PUBLIC COMPANY LIMITED |
| 52 | CONSUMP/FASHION | SAWANG | SAWANG EXPORT PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 53 | CONSUMP/FASHION | SUC | SAHA-UNION PUBLIC COMPANY LIMITED |
| 54 | CONSUMP/FASHION | TNL | THANULUX PUBLIC COMPANY LIMITED |
| 55 | CONSUMP/FASHION | TPCORP | TEXTILE PRESTIGE PUBLIC COMPANY LIMITED |
| 56 | CONSUMP/FASHION | TR | THAI RAYON PUBLIC COMPANY LIMITED |
| 57 | CONSUMP/FASHION | TTI | THAI TEXTILE INDUSTRY PUBLIC COMPANY LIMITED |
| 58 | CONSUMP/FASHION | TTL | TTL INDUSTRIES PUBLIC COMPANY LIMITED |
| 59 | CONSUMP/FASHION | TTTM | THAI TORAY TEXTILE MILLS PUBLIC COMPANY LIMITED |
| 60 | CONSUMP/FASHION | UPF | UNION PIONEER PUBLIC COMPANY LIMITED |
| 61 | CONSUMP/FASHION | UT | UNION TEXTILE INDUSTRIES PUBLIC COMPANY LIMITED |
| 62 | CONSUMP/FASHION | WACOAL | THAI WACOAL PUBLIC COMPANY LIMITED |
| 63 | CONSUMP/HOME | CEI | COMPASS EAST INDUSTRY (THAILAND) PUBLIC COMPANY LIMITED |
| 64 | CONSUMP/HOME | DTCI | D.T.C. INDUSTRIES PUBLIC COMPANY LIMITED |
| 65 | CONSUMP/HOME | FANCY | FANCY WOOD INDUSTRIES PUBLIC COMPANY LIMITED |
| 66 | CONSUMP/HOME | IFEC | INTER FAR EAST ENGINEERING PUBLIC COMPANY LIMITED |
| 67 | CONSUMP/HOME | KYE | KANG YONG ELECTRIC PUBLIC COMPANY LIMITED |
| 68 | CONSUMP/HOME | MODERN | MODERNFORM GROUP PUBLIC COMPANY LIMITED |
| 69 | CONSUMP/HOME | OGC | OCEAN GLASS PUBLIC COMPANY LIMITED |
| 70 | CONSUMP/HOME | ROCK | ROCKWORTH PUBLIC COMPANY LIMITED |
| 71 | CONSUMP/HOME | SIAM | SIAM STEEL INTERNATIONAL PUBLIC COMPANY LIMITED |
| 72 | CONSUMP/HOME | SITHAI | SRITHAI SUPERWARE PUBLIC COMPANY LIMITED |
| 73 | CONSUMP/PERSON | DSGT | DSG INTERNATIONAL (THAILAND) PUBLIC COMPANY LIMITED |
| 74 | CONSUMP/PERSON | JCT | JACK CHIA INDUSTRIES (THAILAND) PUBLIC COMPANY LIMITED |
| 75 | CONSUMP/PERSON | OCC | O.C.C. PUBLIC COMPANY LIMITED |
| 76 | CONSUMP/PERSON | S & J | S & J INTERNATIONAL ENTERPRISES PUBLIC COMPANY LIMITED |
| 77 | CONSUMP/PERSON | STHAI | SHUN THAI RUBBER GLOVES INDUSTRY PUBLIC CO., LTD |
| 78 | CONSUMP/PERSON | TOG | THAI OPTICAL GROUP PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 79 | INDUS/AUTO | AH | AAPICO HITECH PUBLIC COMPANY LIMITED |
| 80 | INDUS/AUTO | BAT-3K | THAI STORAGE BATTERY PUBLIC COMPANY LIMITED |
| 81 | INDUS/AUTO | CWT | CHAI WATANA TANNERY GROUP PUBLIC COMPANY LIMITED |
| 82 | INDUS/AUTO | EASON | EASON PAINT PUBLIC COMPANY LIMITED |
| 83 | INDUS/AUTO | GYT | GOODYEAR (THAILAND) PUBLIC COMPANY LIMITED |
| 84 | INDUS/AUTO | HFT | HWA FONG RUBBER (THAILAND) PUBLIC COMPANY LIMITED |
| 85 | INDUS/AUTO | IHL | INTERHIDES PUBLIC COMPANY LIMITED |
| 86 | INDUS/AUTO | IRC | INOUE RUBBER (THAILAND) PUBLIC COMPANY LIMITED |
| 87 | INDUS/AUTO | SAT | SOMBOON ADVANCE TECHNOLOGY PUBLIC COMPANY LIMITED |
| 88 | INDUS/AUTO | SPG | THE SIAM PAN GROUP PUBLIC COMPANY LIMITED |
| 89 | INDUS/AUTO | STANLY | THAI STANLEY ELECTRIC PUBLIC COMPANY LIMITED |
| 90 | INDUS/AUTO | TKT | T.KRUNGTHAI INDUSTRIES PUBLIC COMPANY LIMITED |
| 91 | INDUS/AUTO | TNPC | THAI NAM PLASTIC PUBLIC COMPANY LIMITED |
| 92 | INDUS/AUTO | TRU | THAI RUNG UNION CAR PUBLIC COMPANY LIMITED |
| 93 | INDUS/AUTO | TSC | THAI STEEL CABLE PUBLIC COMPANY LIMITED |
| 94 | INDUS/IMM | CTW | CHAROONG THAI WIRE & CABLE PUBLIC COMPANY LIMITED |
| 95 | INDUS/IMM | FMT | FURUKAWA METAL (THAILAND) PUBLIC COMPANY LIMITED |
| 96 | INDUS/IMM | KKC | KULTHORN KIRBY PUBLIC COMPANY LIMITED |
| 97 | INDUS/IMM | PATKL | PATKOL PUBLIC COMPANY LIMITED |
| 98 | INDUS/IMM | SNC | SNC FORMER PUBLIC COMPANY LIMITED |
| 99 | INDUS/IMM | TCJ | T.C.J. ASIA PUBLIC COMPANY LIMITED |
| 100 | INDUS/IMM | VARO | VAROPAKORN PUBLIC COMPANY LIMITED |
| 101 | INDUS/PAPER | TCP | THAI CANE PAPER PUBLIC COMPANY LIMITED |
| 102 | INDUS/PAPER | UTP | UNITED PAPER PUBLIC COMPANY LIMITED |
| 103 | INDUS/PETRO | GC | GLOBAL CONNECTIONS PUBLIC COMPANY LIMITED |
| 104 | INDUS/PETRO | PATO | PATO CHEMICAL INDUSTRY PUBLIC COMPANY LIMITED |
| 105 | INDUS/PETRO | TCB | THAI CARBON BLACK PUBLIC COMPANY LIMITED |
| 106 | INDUS/PETRO | TCCC | THAI CENTRAL CHEMICAL PUBLIC COMPANY LIMITED |
| 107 | INDUS/PETRO | TPA | THAI POLY ACRYLIC PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 108 | INDUS/PETRO | TPC | THAI PLASTIC AND CHEMICALS PUBLIC COMPANY LIMITED |
| 109 | INDUS/PETRO | UP | UNION PLASTIC PUBLIC COMPANY LIMITED |
| 110 | INDUS/PETRO | VNT | VINYTHAI PUBLIC COMPANY LIMITED |
| 111 | INDUS/PETRO | WG | WHITE GROUP PUBLIC COMPANY LIMITED |
| 112 | INDUS/PETRO | YCI | YONG THAI PUBLIC COMPANY LIMITED |
| 113 | INDUS/PKG | AJ | A.J. PLAST PUBLIC COMPANY LIMITED |
| 114 | INDUS/PKG | ALUCON | ALUCON PUBLIC COMPANY LIMITED |
| 115 | INDUS/PKG | CSC | CROWN SEAL PUBLIC COMPANY LIMITED |
| 116 | INDUS/PKG | NEP | NEP REALTY AND INDUSTRY PUBLIC COMPANY LIMITED |
| 117 | INDUS/PKG | NIPPON | NIPPON PACK (THAILAND) PUBLIC COMPANY LIMITED |
| 118 | INDUS/PKG | PTL | POLYPLEX (THAILAND) PUBLIC COMPANY LIMITED |
| 119 | INDUS/PKG | SMPC | SAHAMITR PRESSURE CONTAINER PUBLIC COMPANY LIMITED |
| 120 | INDUS/PKG | SPACK | S. PACK & PRINT PUBLIC COMPANY LIMITED |
| 121 | INDUS/PKG | TCOAT2 | THAI COATING INDUSTRIAL PUBLIC COMPANY LIMITED |
| 122 | INDUS/PKG | TFI | THAI FILM INDUSTRIES PUBLIC COMPANY LIMITED |
| 123 | INDUS/PKG | THIP | THANTAWAN INDUSTRY PUBLIC COMPANY LIMITED |
| 124 | INDUS/PKG | TMD | THAI METAL DRUM MANUFACTURING PUBLIC COMPANY LIMITED |
| 125 | INDUS/PKG | TOPP | THAI O.P.P. PUBLIC COMPANY LIMITED |
| 126 | INDUS/PKG | TPP | THAI PACKAGING & PRINTING PUBLIC COMPANY LIMITED |
| 127 | INDUS/STEEL | AMC | ASIA METAL PUBLIC COMPANY LIMITED |
| 128 | INDUS/STEEL | BSBM | BANGSAPHAN BARMILL PUBLIC COMPANY LIMITED |
| 129 | INDUS/STEEL | CEN | CAPITAL ENGINEERING NETWORK PUBLIC COMPANY LIMITED |
| 130 | INDUS/STEEL | CITY | CITY STEEL PUBLIC COMPANY LIMITED |
| 131 | INDUS/STEEL | CSP | CSP STEEL CENTER PUBLIC COMPANY LIMITED |
| 132 | INDUS/STEEL | GJS | G J STEEL PUBLIC COMPANY LIMITED |
| 133 | INDUS/STEEL | GSTEL | G STEEL PUBLIC COMPANY LIMITED |
| 134 | INDUS/STEEL | INOX | POSCO-THAINOX PUBLIC COMPANY LIMITED |
| 135 | INDUS/STEEL | LHK | LOHAKIT METAL PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 136 | INDUS/STEEL | MAX | MAX METAL CORPORATION PUBLIC COMPANY LIMITED |
| 137 | INDUS/STEEL | MCS | M.C.S.STEEL PUBLIC COMPANY LIMITED |
| 138 | INDUS/STEEL | MILL | MILLCON STEEL PUBLIC COMPANY LIMITED |
| 139 | INDUS/STEEL | PAP | PACIFIC PIPE PUBLIC COMPANY LIMITED |
| 140 | INDUS/STEEL | PERM | PERMSIN STEEL WORKS PUBLIC COMPANY LIMITED |
| 141 | INDUS/STEEL | RICH | RICH ASIA STEEL PUBLIC COMPANY LIMITED |
| 142 | INDUS/STEEL | SAM | SAMCHAI STEEL INDUSTRIES PUBLIC COMPANY LIMITED |
| 143 | INDUS/STEEL | SMIT | SAHAMIT MACHINERY PUBLIC COMPANY LIMITED |
| 144 | INDUS/STEEL | SSI | SAHAVIRIYA STEEL INDUSTRIES PUBLIC COMPANY LIMITED |
| 145 | INDUS/STEEL | SSSC | SIAM STEEL SERVICE CENTER PUBLIC COMPANY LIMITED |
| 146 | INDUS/STEEL | TIW | THAILAND IRON WORKS PUBLIC COMPANY LIMITED |
| 147 | INDUS/STEEL | TMT | THAI METAL TRADE PUBLIC COMPANY LIMITED |
| 148 | INDUS/STEEL | TSTH | TATA STEEL (THAILAND) PUBLIC COMPANY LIMITED |
| 149 | INDUS/STEEL | TYCN | TYCOONS WORLDWIDE GROUP (THAILAND) PUBLIC CO.,LTD. |
| 150 | PROPCON/CONMAT | CCP | CHONBURI CONCRETE PRODUCT PUBLIC COMPANY LIMITED |
| 151 | PROPCON/CONMAT | DCC | DYNASTY CERAMIC PUBLIC COMPANY LIMITED |
| 152 | PROPCON/CONMAT | DCON | DCON PRODUCTS PUBLIC COMPANY LIMITED |
| 153 | PROPCON/CONMAT | DRT | DIAMOND BUILDING PRODUCTS PUBLIC COMPANY LIMITED |
| 154 | PROPCON/CONMAT | GEN | GENERAL ENGINEERING PUBLIC COMPANY LIMITED |
| 155 | PROPCON/CONMAT | Q-CON | QUALITY CONSTRUCTION PRODUCTS PUBLIC COMPANY LIMITED |
| 156 | PROPCON/CONMAT | RCI | THE ROYAL CERAMIC INDUSTRY PUBLIC COMPANY LIMITED |
| 157 | PROPCON/CONMAT | SCC | THE SIAM CEMENT PUBLIC COMPANY LIMITED |
| 158 | PROPCON/CONMAT | SCCC | SIAM CITY CEMENT PUBLIC COMPANY LIMITED |
| 159 | PROPCON/CONMAT | SCP | SOUTHERN CONCRETE PILE PUBLIC COMPANY LIMITED |
| 160 | PROPCON/CONMAT | SINGHA | SINGHA PARATECH PUBLIC COMPANY LIMITED |
| 161 | PROPCON/CONMAT | SUPER | SUPERBLOCK PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 162 | PROPCON/CONMAT | TASCO | TIPCO ASPHALT PUBLIC COMPANY LIMITED |
| 163 | PROPCON/CONMAT | TCMC | THAILAND CARPET MANUFACTURING PUBLIC COMPANY LIMITED |
| 164 | PROPCON/CONMAT | TGCI | THAI-GERMAN CERAMIC INDUSTRY PUBLIC COMPANY LIMITED |
| 165 | PROPCON/CONMAT | TPIPL | TPI POLENE PUBLIC COMPANY LIMITED |
| 166 | PROPCON/CONMAT | UMI | THE UNION MOSAIC INDUSTRY PUBLIC COMPANY LIMITED |
| 167 | PROPCON/CONMAT | VNG | VANACHAI GROUP PUBLIC COMPANY LIMITED |
| 168 | PROPCON/CONMAT | WIIK | WIIK & HOEGLUND PUBLIC COMPANY LIMITED |
| 169 | PROPCON/PROP | A | AREEYA PROPERTY PUBLIC COMPANY LIMITED |
| 170 | PROPCON/PROP | AMATA | AMATA CORPORATION PUBLIC COMPANY LIMITED |
| 171 | PROPCON/PROP | AP | AP (THAILAND) PUBLIC COMPANY LIMITED |
| 172 | PROPCON/PROP | BLAND | BANGKOK LAND PUBLIC COMPANY LIMITED |
| 173 | PROPCON/PROP | BROCK | BAAN ROCK GARDEN PUBLIC COMPANY LIMITED |
| 174 | PROPCON/PROP | CI | CHARN ISSARA DEVELOPMENT PUBLIC COMPANY LIMITED |
| 175 | PROPCON/PROP | CK | CH. KARNCHANG PUBLIC COMPANY LIMITED |
| 176 | PROPCON/PROP | CNT | CHRISTIANI & NIELSEN (THAI) PUBLIC COMPANY LIMITED |
| 177 | PROPCON/PROP | CPN | CENTRAL PATTANA PUBLIC COMPANY LIMITED |
| 178 | PROPCON/PROP | EMC | EMC PUBLIC COMPANY LIMITED |
| 179 | PROPCON/PROP | ESTAR | EASTERN STAR REAL ESTATE PUBLIC COMPANY LIMITED |
| 180 | PROPCON/PROP | EVER | EVERLAND PUBLIC COMPANY LIMITED |
| 181 | PROPCON/PROP | GLAND | GRAND CANAL LAND PUBLIC COMPANY LIMITED |
| 182 | PROPCON/PROP | GOLD | GOLDEN LAND PROPERTY DEVELOPMENT PUBLIC COMPANY LIMITED |
| 183 | PROPCON/PROP | HEMRAJ | HEMARAJ LAND AND DEVELOPMENT PUBLIC COMPANY LIMITED |
| 184 | PROPCON/PROP | ITD | ITALIAN-THAI DEVELOPMENT PUBLIC COMPANY LIMITED |
| 185 | PROPCON/PROP | KC | K.C. PROPERTY PUBLIC COMPANY LIMITED |
| 186 | PROPCON/PROP | KMC | KRISDAMAHANAKORN PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 187 | PROPCON/PROP | KTP | KEPPEL THAI PROPERTIES PUBLIC COMPANY LIMITED |
| 188 | PROPCON/PROP | LALIN | LALIN PROPERTY PUBLIC COMPANY LIMITED |
| 189 | PROPCON/PROP | LH | LAND AND HOUSES PUBLIC COMPANY LIMITED |
| 190 | PROPCON/PROP | LPN | L.P.N. DEVELOPMENT PUBLIC COMPANY LIMITED |
| 191 | PROPCON/PROP | MBK | MBK PUBLIC COMPANY LIMITED |
| 192 | PROPCON/PROP | MJD | MAJOR DEVELOPMENT PUBLIC COMPANY LIMITED |
| 193 | PROPCON/PROP | MK | M.K. REAL ESTATE DEVELOPMENT PUBLIC COMPANY LIMITED |
| 194 | PROPCON/PROP | NCH | N. C. HOUSING PUBLIC COMPANY LIMITED |
| 195 | PROPCON/PROP | NNCL | NAVANAKORN PUBLIC COMPANY LIMITED |
| 196 | PROPCON/PROP | NOBLE | NOBLE DEVELOPMENT PUBLIC COMPANY LIMITED |
| 197 | PROPCON/PROP | N-PARK | NATURAL PARK PUBLIC COMPANY LIMITED |
| 198 | PROPCON/PROP | NUSA | NUSASIRI PUBLIC COMPANY LIMITED |
| 199 | PROPCON/PROP | NWR | NAWARAT PATANAKARN PUBLIC COMPANY LIMITED |
| 200 | PROPCON/PROP | PAE | PAE (THAILAND) PUBLIC COMPANY LIMITED |
| 201 | PROPCON/PROP | PF | PROPERTY PERFECT PUBLIC COMPANY LIMITED |
| 202 | PROPCON/PROP | PLE | POWER LINE ENGINEERING PUBLIC COMPANY LIMITED |
| 203 | PROPCON/PROP | PREB | PRE-BUILT PUBLIC COMPANY LIMITED |
| 204 | PROPCON/PROP | PRECHA | PREECHA GROUP PUBLIC COMPANY LIMITED |
| 205 | PROPCON/PROP | PRIN | PRINSIRI PUBLIC COMPANY LIMITED |
| 206 | PROPCON/PROP | PRINC | PRINCIPAL CAPITAL PUBLIC COMPANY LIMITED |
| 207 | PROPCON/PROP | PS | PRUKSA REAL ESTATE PUBLIC COMPANY LIMITED |
| 208 | PROPCON/PROP | QH | QUALITY HOUSES PUBLIC COMPANY LIMITED |
| 209 | PROPCON/PROP | RASA | RASA PROPERTY DEVELOPMENT PUBLIC COMPANY LIMITED |
| 210 | PROPCON/PROP | RML | RAIMON LAND PUBLIC COMPANY LIMITED |
| 211 | PROPCON/PROP | ROJNA | ROJANA INDUSTRIAL PARK PUBLIC COMPANY LIMITED |
| 212 | PROPCON/PROP | SAMCO | SAMMAKORN PUBLIC COMPANY LIMITED |
| 213 | PROPCON/PROP | SC | SC ASSET CORPORATION PUBLIC COMPANY LIMITED |
| 214 | PROPCON/PROP | SEAFCO | SEAFCO PUBLIC COMPANY LIMITED |
| 215 | PROPCON/PROP | SF | SIAM FUTURE DEVELOPMENT PUBLIC COMPANY LIMITED |
| 216 | PROPCON/PROP | SIRI | SANSIRI PUBLIC COMPANY LIMITED |
| 217 | PROPCON/PROP | SPALI | SUPALAI PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 218 | PROPCON/PROP | STEC | SINO-THAI ENGINEERING AND CONSTRUCTION PUBLIC COMPANY LIMITED |
| 219 | PROPCON/PROP | STPI | STP&I PUBLIC COMPANY LIMITED |
| 220 | PROPCON/PROP | SYNTEC | SYNTEC CONSTRUCTION PUBLIC COMPANY LIMITED |
| 221 | PROPCON/PROP | TFD | THAI FACTORY DEVELOPMENT PUBLIC COMPANY LIMITED |
| 222 | PROPCON/PROP | TICON | TICON INDUSTRIAL CONNECTION PUBLIC COMPANY LIMITED |
| 223 | PROPCON/PROP | TRC | TRC CONSTRUCTION PUBLIC COMPANY LIMITED |
| 224 | PROPCON/PROP | UNIQ | UNIQUE ENGINEERING AND CONSTRUCTION PUBLIC COMPANY LIMITED |
| 225 | PROPCON/PROP | UV | UNIVENTURES PUBLIC COMPANY LIMITED |
| 226 | PROPCON/PROP | WAT | WATTANA CAPITAL PUBLIC COMPANY LIMITED |
| 227 | PROPCON/PROP | WIN | WYNCOAST INDUSTRIAL PARK PUBLIC COMPANY LIMITED |
| 228 | RESOURC/ENERG | AI | ASIAN INSULATORS PUBLIC COMPANY LIMITED |
| 229 | RESOURC/ENERG | AKR | EKARAT ENGINEERING PUBLIC COMPANY LIMITED |
| 230 | RESOURC/ENERG | BAFS | BANGKOK AVIATION FUEL SERVICES PUBLIC COMPANY LIMITED |
| 231 | RESOURC/ENERG | BANPU | BANPU PUBLIC COMPANY LIMITED |
| 232 | RESOURC/ENERG | BCP | THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED |
| 233 | RESOURC/ENERG | DEMCO | DEMCO PUBLIC COMPANY LIMITED |
| 234 | RESOURC/ENERG | EASTW | EASTERN WATER RESOURCES DEVELOPMENT AND MANAGEMENT PUBLIC COMPANY LIMITED |
| 235 | RESOURC/ENERG | EGCO | ELECTRICITY GENERATING PUBLIC COMPANY LIMITED |
| 236 | RESOURC/ENERG | ESSO | ESSO (THAILAND) PUBLIC COMPANY LIMITED |
| 237 | RESOURC/ENERG | GLOW | GLOW ENERGY PUBLIC COMPANY LIMITED |
| 238 | RESOURC/ENERG | IRPC | IRPC PUBLIC COMPANY LIMITED |
| 239 | RESOURC/ENERG | LANNA | THE LANNA RESOURCES PUBLIC COMPANY LIMITED |
| 240 | RESOURC/ENERG | MDX | M.D.X. PUBLIC COMPANY LIMITED |
| 241 | RESOURC/ENERG | PTT | PTT PUBLIC COMPANY LIMITED |
| 242 | RESOURC/ENERG | PTTEP | PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 243 | RESOURC/ENERG | RATCH | RATCHABURI ELECTRICITY GENERATING HOLDING PUBLIC COMPANY LIMITED |
| 244 | RESOURC/ENERG | RPC | RAYONG PURIFIER PUBLIC COMPANY LIMITED |
| 245 | RESOURC/ENERG | SCG | SAHACOGEN (CHONBURI) PUBLIC COMPANY LIMITED |
| 246 | RESOURC/ENERG | SGP | SIAMGAS AND PETROCHEMICALS PUBLIC COMPANY LIMITED |
| 247 | RESOURC/ENERG | SOLAR | SOLARTRON PUBLIC COMPANY LIMITED |
| 248 | RESOURC/ENERG | SPCG | SPCG PUBLIC COMPANY LIMITED |
| 249 | RESOURC/ENERG | SUSCO | SUSCO PUBLIC COMPANY LIMITED |
| 250 | RESOURC/ENERG | TCC | THAI CAPITAL CORPORATION PUBLIC COMPANY LIMITED |
| 251 | RESOURC/ENERG | TOP | THAI OIL PUBLIC COMPANY LIMITED |
| 252 | RESOURC/ENERG | TTW | THAI TAP WATER SUPPLY PUBLIC COMPANY LIMITED |
| 253 | RESOURC/MINE | PDI | PADAENG INDUSTRY PUBLIC COMPANY LIMITED |
| 254 | RESOURC/MINE | THL | TONGKAH HARBOUR PUBLIC COMPANY LIMITED |
| 255 | SERVICE/COMM | BIGC | BIG C SUPERCENTER PUBLIC COMPANY LIMITED |
| 256 | SERVICE/COMM | BJC | BERLI JUCKER PUBLIC COMPANY LIMITED |
| 257 | SERVICE/COMM | CPALL | CP ALL PUBLIC COMPANY LIMITED |
| 258 | SERVICE/COMM | HMPRO | HOME PRODUCT CENTER PUBLIC COMPANY LIMITED |
| 259 | SERVICE/COMM | IT | IT CITY PUBLIC COMPANY LIMITED |
| 260 | SERVICE/COMM | KAMART | KARMARTS PUBLIC COMPANY LIMITED |
| 261 | SERVICE/COMM | LOXLEY | LOXLEY PUBLIC COMPANY LIMITED |
| 262 | SERVICE/COMM | MAKRO | SIAM MAKRO PUBLIC COMPANY LIMITED |
| 263 | SERVICE/COMM | MIDA | MIDA ASSETS PUBLIC COMPANY LIMITED |
| 264 | SERVICE/COMM | ROBINS | ROBINSON DEPARTMENT STORE PUBLIC COMPANY LIMITED |
| 265 | SERVICE/COMM | SINGER | SINGER THAILAND PUBLIC COMPANY LIMITED |
| 266 | SERVICE/COMM | SPC | SAHA PATHANAPIBUL PUBLIC COMPANY LIMITED |
| 267 | SERVICE/COMM | SPI | SAHA PATHANA INTER-HOLDING PUBLIC COMPANY LIMITED |
| 268 | SERVICE/HELTH | AHC | AIKCHOL HOSPITAL PUBLIC COMPANY LIMITED |
| 269 | SERVICE/HELTH | BCH | BANGKOK CHAIN HOSPITAL PUBLIC COMPANY LIMITED |
| 270 | SERVICE/HELTH | BGH | BANGKOK DUSIT MEDICAL SERVICES PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 271 | SERVICE/HELTH | BH | BUMRUNGRAD HOSPITAL PUBLIC COMPANY LIMITED |
| 272 | SERVICE/HELTH | CMR | CHIANG MAI RAM MEDICAL BUSINESS PUBLIC COMPANY LIMITED |
| 273 | SERVICE/HELTH | KDH | THONBURI MEDICAL CENTRE PUBLIC COMPANY LIMITED |
| 274 | SERVICE/HELTH | M-CHAI | MAHACHAI HOSPITAL PUBLIC COMPANY LIMITED |
| 275 | SERVICE/HELTH | NEW | WATTANA KARNPAET PUBLIC COMPANY LIMITED |
| 276 | SERVICE/HELTH | NTV | NONTHAVEJ HOSPITAL PUBLIC COMPANY LIMITED |
| 277 | SERVICE/HELTH | RAM | RAMKHAMHAENG HOSPITAL PUBLIC COMPANY LIMITED |
| 278 | SERVICE/HELTH | SKR | SIKARIN PUBLIC COMPANY LIMITED |
| 279 | SERVICE/HELTH | SVH | SAMITIVEJ PUBLIC COMPANY LIMITED |
| 280 | SERVICE/HELTH | VIBHA | VIBHAVADI MEDICAL CENTER PUBLIC COMPANY LIMITED |
| 281 | SERVICE/MEDIA | AMARIN | AMARIN PRINTING AND PUBLISHING PUBLIC COMPANY LIMITED |
| 282 | SERVICE/MEDIA | AQUA | AQUA CORPORATION PUBLIC COMPANY LIMITED |
| 283 | SERVICE/MEDIA | AS | ASIASOFT CORPORATION PUBLIC COMPANY LIMITED |
| 284 | SERVICE/MEDIA | BEC | BEC WORLD PUBLIC COMPANY LIMITED |
| 285 | SERVICE/MEDIA | EPCO | EASTERN PRINTING PUBLIC COMPANY LIMITED |
| 286 | SERVICE/MEDIA | FE | FAR EAST DDB PUBLIC COMPANY LIMITED |
| 287 | SERVICE/MEDIA | GRAMMY | GMM GRAMMY PUBLIC COMPANY LIMITED |
| 288 | SERVICE/MEDIA | LIVE | LIVE INCORPORATION PUBLIC COMPANY LIMITED |
| 289 | SERVICE/MEDIA | MACO | MASTER AD PUBLIC COMPANY LIMITED |
| 290 | SERVICE/MEDIA | MAJOR | MAJOR CINEPLEX GROUP PUBLIC COMPANY LIMITED |
| 291 | SERVICE/MEDIA | MATCH | MATCHING MAXIMIZE SOLUTION PUBLIC COMPANY LIMITED |
| 292 | SERVICE/MEDIA | MATI | MATICHON PUBLIC COMPANY LIMITED |
| 293 | SERVICE/MEDIA | MCOT | MCOT PUBLIC COMPANY LIMITED |
| 294 | SERVICE/MEDIA | MPG | MANGPONG 1989 PUBLIC COMPANY LIMITED |
| 295 | SERVICE/MEDIA | MPIC | M PICTURES ENTERTAINMENT PUBLIC COMPANY LIMITED |
| 296 | SERVICE/MEDIA | NMG | NATION MULTIMEDIA GROUP PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 297 | SERVICE/MEDIA | P-FCB | PRAKIT HOLDINGS PUBLIC COMPANY LIMITED |
| 298 | SERVICE/MEDIA | POST | THE POST PUBLISHING PUBLIC COMPANY LIMITED |
| 299 | SERVICE/MEDIA | RS | RS PUBLIC COMPANY LIMITED |
| 300 | SERVICE/MEDIA | SE-ED | SE-EDUCATION PUBLIC COMPANY LIMITED |
| 301 | SERVICE/MEDIA | SMM | SIAM INTER MULTIMEDIA PUBLIC COMPANY LIMITED |
| 302 | SERVICE/MEDIA | SPORT | SIAM SPORT SYNDICATE PUBLIC COMPANY LIMITED |
| 303 | SERVICE/MEDIA | TBSP | THAI BRITISH SECURITY PRINTING PUBLIC COMPANY LIMITED |
| 304 | SERVICE/MEDIA | TH | TONG HUA COMMUNICATIONS PUBLIC COMPANY LIMITED |
| 305 | SERVICE/MEDIA | TKS | T.K.S. TECHNOLOGIES PUBLIC COMPANY LIMITED |
| 306 | SERVICE/MEDIA | WAVE | WAVE ENTERTAINMENT PUBLIC COMPANY LIMITED |
| 307 | SERVICE/MEDIA | WORK | WORKPOINT ENTERTAINMENT PUBLIC COMPANY LIMITED |
| 308 | SERVICE/PROF | BWG | BETTER WORLD GREEN PUBLIC COMPANY LIMITED |
| 309 | SERVICE/PROF | GENCO | GENERAL ENVIRONMENTAL CONSERVATION PUBLIC COMPANY LIMITED |
| 310 | SERVICE/PROF | PRO | PROFESSIONAL WASTE TECHNOLOGY (1999) PUBLIC COMPANY LIMITED |
| 311 | SERVICE/TOURISM | ACD | ASIA CORPORATE DEVELOPMENT PUBLIC COMPANY LIMITED |
| 312 | SERVICE/TOURISM | ASIA | ASIA HOTEL PUBLIC COMPANY LIMITED |
| 313 | SERVICE/TOURISM | CENTEL | CENTRAL PLAZA HOTEL PUBLIC COMPANY LIMITED |
| 314 | SERVICE/TOURISM | CSR | CITY SPORTS AND RECREATION PUBLIC COMPANY LIMITED |
| 315 | SERVICE/TOURISM | DTC | DUSIT THANI PUBLIC COMPANY LIMITED |
| 316 | SERVICE/TOURISM | ERW | THE ERAWAN GROUP PUBLIC COMPANY LIMITED |
| 317 | SERVICE/TOURISM | GRAND | GRANDE ASSET HOTELS AND PROPERTY PUBLIC COMPANY LIMITED |
| 318 | SERVICE/TOURISM | LRH | LAGUNA RESORTS & HOTELS PUBLIC COMPANY LIMITED |
| 319 | SERVICE/TOURISM | MANRIN | THE MANDARIN HOTEL PUBLIC COMPANY LIMITED |
| 320 | SERVICE/TOURISM | OHTL | OHTL PUBLIC COMPANY LIMITED |
| 321 | SERVICE/TOURISM | ROH | ROYAL ORCHID HOTEL (THAILAND) PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 322 | SERVICE/TOURISM | SHANG | SHANGRI-LA HOTEL PUBLIC COMPANY LIMITED |
| 323 | SERVICE/TRANS | AOT | AIRPORTS OF THAILAND PUBLIC COMPANY LIMITED |
| 324 | SERVICE/TRANS | ASIMAR | ASIAN MARINE SERVICES PUBLIC COMPANY LIMITED |
| 325 | SERVICE/TRANS | BECL | BANGKOK EXPRESSWAY PUBLIC COMPANY LIMITED |
| 326 | SERVICE/TRANS | BMCL | BANGKOK METRO PUBLIC COMPANY LIMITED |
| 327 | SERVICE/TRANS | BTC | BANGPAKONG TERMINAL PUBLIC COMPANY LIMITED |
| 328 | SERVICE/TRANS | BTS | BTS GROUP HOLDINGS PUBLIC COMPANY LIMITED |
| 329 | SERVICE/TRANS | JUTHA | JUTHA MARITIME PUBLIC COMPANY LIMITED |
| 330 | SERVICE/TRANS | KWC | KRUNGDHEP SOPHON PUBLIC COMPANY LIMITED |
| 331 | SERVICE/TRANS | PSL | PRECIOUS SHIPPING PUBLIC COMPANY LIMITED |
| 332 | SERVICE/TRANS | RCL | REGIONAL CONTAINER LINES PUBLIC COMPANY LIMITED |
| 333 | SERVICE/TRANS | THAI | THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED |
| 334 | SERVICE/TRANS | TSTE | THAI SUGAR TERMINAL PUBLIC COMPANY LIMITED |
| 335 | SERVICE/TRANS | TTA | THORESEN THAI AGENCIES PUBLIC COMPANY LIMITED |
| 336 | TECH/ETRON | CCET | CAL-COMP ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED |
| 337 | TECH/ETRON | DELTA | DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED |
| 338 | TECH/ETRON | DRACO | DRACO PCB PUBLIC COMPANY LIMITED |
| 339 | TECH/ETRON | EIC | ELECTRONICS INDUSTRY PUBLIC COMPANY LIMITED |
| 340 | TECH/ETRON | HANA | HANA MICROELECTRONICS PUBLIC COMPANY LIMITED |
| 341 | TECH/ETRON | KCE | KCE ELECTRONICS PUBLIC COMPANY LIMITED |
| 342 | TECH/ETRON | METCO | MURAMOTO ELECTRON (THAILAND) PUBLIC COMPANY LIMITED |
| 343 | TECH/ETRON | SPPT | SINGLE POINT PARTS (THAILAND) PUBLIC COMPANY LIMITED |
| 344 | TECH/ETRON | SVI | SVI PUBLIC COMPANY LIMITED |
| 345 | TECH/ETRON | TEAM | TEAM PRECISION PUBLIC COMPANY LIMITED |
| 346 | TECH/ICT | ADVANC | ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED |
| 347 | TECH/ICT | AIT | ADVANCED INFORMATION TECHNOLOGY PUBLIC COMPANY LIMITED |
| 348 | TECH/ICT | BLISS | BLISS-TEL PUBLIC COMPANY LIMITED |

| ID | Industry/Sector | Symbol | Name |
|---|---|---|---|
| 349 | TECH/ICT | CSL | CS LOXINFO PUBLIC COMPANY LIMITED |
| 350 | TECH/ICT | DTAC | TOTAL ACCESS COMMUNICATION PUBLIC COMPANY LIMITED |
| 351 | TECH/ICT | FORTH | FORTH CORPORATION PUBLIC COMPANY LIMITED |
| 352 | TECH/ICT | IEC | THE INTERNATIONAL ENGINEERING PUBLIC COMPANY LIMITED |
| 353 | TECH/ICT | INET | INTERNET THAILAND PUBLIC COMPANY LIMITED |
| 354 | TECH/ICT | INTUCH | SHIN CORPORATION PUBLIC COMPANY LIMITED |
| 355 | TECH/ICT | JAS | JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED |
| 356 | TECH/ICT | JTS | JASMINE TELECOM SYSTEMS PUBLIC COMPANY LIMITED |
| 357 | TECH/ICT | MFEC | MFEC PUBLIC COMPANY LIMITED |
| 358 | TECH/ICT | MLINK | M-LINK ASIA CORPORATION PUBLIC COMPANY LIMITED |
| 359 | TECH/ICT | MSC | METRO SYSTEMS CORPORATION PUBLIC COMPANY LIMITED |
| 360 | TECH/ICT | PT | PREMIER TECHNOLOGY PUBLIC COMPANY LIMITED |
| 361 | TECH/ICT | SAMART | SAMART CORPORATION PUBLIC COMPANY LIMITED |
| 362 | TECH/ICT | SAMTEL | SAMART TELCOMS PUBLIC COMPANY LIMITED |
| 363 | TECH/ICT | SIM | SAMART I-MOBILE PUBLIC COMPANY LIMITED |
| 364 | TECH/ICT | SIS | SIS DISTRIBUTION (THAILAND) PUBLIC COMPANY LIMITED |
| 365 | TECH/ICT | SVOA | SVOA PUBLIC COMPANY LIMITED |
| 366 | TECH/ICT | SYNEX | SYNNEX (THAILAND) PUBLIC COMPANY LIMITED |
| 367 | TECH/ICT | THCOM | THAICOM PUBLIC COMPANY LIMITED |
| 368 | TECH/ICT | TRUE | TRUE CORPORATION PUBLIC COMPANY LIMITED |
| 369 | TECH/ICT | TT&T | TT&T PUBLIC COMPANY LIMITED |
| 370 | TECH/ICT | TWZ | TWZ CORPORATION PUBLIC COMPANY LIMITED |

# APPENDIX B

# TABLES

**Table B-1:** Descriptive statistics of variables used in analyses using the DD model (Obs=1,850, Time=5)

**Panel A:** Coefficient value estimated from the DD model (Equation 2)

$$\frac{TCA_{it}}{A_{it}} = \beta_0 + \beta_1 \frac{CFO_{i,t-1}}{A_{it}} + \beta_2 \frac{CFO_{i,t}}{A_{it}} + \beta_3 \frac{CFO_{i,t+1}}{A_{it}} + \varepsilon_{it}$$

| | $\beta_0$ | $\beta_1$ | $\beta_2$ | $\beta_3$ |
|---|---|---|---|---|
| Expected sign | – | + | – | + |
| All observations (DD1) | 0.0076 | 0.2602*** | –0.6087*** | 0.0440*** |
| Each industry (DD2): | | | | |
| IND_1 (Obs=200) | –0.0163 | 0.0650 | –0.3728*** | 0.1212* |
| IND_2 (Obs=190) | –0.0266 | 0.0175 | –0.5219*** | 0.1989** |
| IND_3 (Obs=355) | –0.0162 | 0.2100*** | –0.6388*** | 0.1718*** |
| IND_4 (Obs=390) | –0.0068 | 0.2482*** | –0.8014*** | 0.0136 |
| IND_5 (Obs=135) | –0.0740*** | 0.2598*** | –0.5506*** | 0.2837*** |
| IND_6 (Obs=405) | –0.0431*** | 0.2357*** | –0.3993*** | 0.1895*** |
| IND_7 (Obs=175) | –0.0224 | 0.1513* | –0.7406*** | 0.3087*** |
| Each year (DD3): | | | | |
| 2008 (Obs=370) | –0.0384*** | 0.1583** | –0.5302*** | 0.3175*** |
| 2009 (Obs=370) | –0.0088 | 0.2298*** | –0.5706*** | –0.0255* |
| 2010 (Obs=370) | –0.0057 | 0.3095*** | –0.8861*** | 0.2721*** |
| 2011 (Obs=370) | 0.0030 | 0.2133*** | –0.4868*** | 0.0838* |
| 2012 (Obs=370) | 0.0222*** | 0.1816** | –0.5956*** | 0.2002*** |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

**Panel B:** Sign of discretionary accruals variables (Equation 3)

$$DA\_DD_{it} = \frac{TCA_{it}}{A_{it}} - (\hat{\beta}_0 + \hat{\beta}_1 \frac{CFO_{i,t-1}}{A_{it}} + \hat{\beta}_2 \frac{CFO_{i,t}}{A_{it}} + \hat{\beta}_3 \frac{CFO_{i,t+1}}{A_{it}})$$

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| DA_DD1 | –0.9050 | 0.9481 | 0.0000 | –0.0010 | 0.1174 | –0.0457 | 0.0453 | 0.1038 |
| DA_DD2 | –0.8539 | 0.9640 | 0.0000 | –0.0001 | 0.1124 | –0.0461 | 0.0459 | 0.0973 |
| DA_DD3 | –0.8878 | 0.9405 | 0.0000 | –0.0038 | 0.1143 | –0.0447 | 0.0454 | 0.1044 |

**Panel C:** Absolute value of discretionary accruals variables

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| ABDA_DD1 | 0.0002 | 0.9481 | 0.0711 | 0.0455 | 0.0933 | 0.0188 | 0.0850 | 0.1499 |
| ABDA_DD2 | 0.0001 | 0.9640 | 0.0698 | 0.0460 | 0.0881 | 0.0212 | 0.0856 | 0.1451 |
| ABDA_DD3 | 0.0000 | 0.9405 | 0.0708 | 0.0451 | 0.0898 | 0.0206 | 0.0851 | 0.1485 |

**Table B-2:** Descriptive statistics of variables used in analyses using the MJ model (Obs=1,850, Time=5)

**Panel A:** Coefficient value estimated from the MJ model (Equation 5)

$$\frac{TA_{it}}{A_{i,t-1}} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta REV_{it}}{A_{i,t-1}} + \beta_3 \frac{PPE_{it}}{A_{i,t-1}} + \varepsilon_{it}$$

| | $\beta_1$ | $\beta_2$ | $\beta_3$ |
|---|---|---|---|
| Expected sign | + | + | – |
| All observations (MJ1) | 94300.08*** | 0.0522*** | –0.0467** |
| Each industry (MJ2): | | | |
| IND_1 (Obs=200) | –20762.40 | 0.0395* | –0.0808** |
| IND_2 (Obs=190) | –6916.35 | 0.1286*** | –0.1046*** |
| IND_3 (Obs=355) | 100032.61 | 0.0679*** | –0.0588** |
| IND_4 (Obs=390) | 763499.80*** | 0.0712 | –0.5181*** |
| IND_5 (Obs=135) | 3942.09 | 0.0544*** | –0.0017 |
| IND_6 (Obs=405) | –0.92530.95*** | 0.0234 | 0.0031 |
| IND_7 (Obs=175) | 29921.59 | 0.1493*** | –0.0745 |
| Each year (MJ3): | | | |
| 2008 (Obs=370) | 96041.88*** | 0.0268 | –0.1779*** |
| 2009 (Obs=370) | –19463.01*** | 0.0291* | –0.0946*** |
| 2010 (Obs=370) | 132237.70*** | 0.0672 | –0.1364*** |
| 2011 (Obs=370) | –4394.64 | 0.0841*** | –0.0660*** |
| 2012 (Obs=370) | 5212.65 | 0.0941*** | –0.0608*** |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

**Panel B:** Sign of discretionary accruals variables (Equation 7)

$$DA\_MJ_{it} = \frac{TA_{it}}{A_{i,t-1}} - (\beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{(\Delta REV_{it} - \Delta AR_{it})}{A_{i,t-1}} + \beta_3 \frac{PPE_{it}}{A_{i,t-1}}{}_{it})$$

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| DA_MJ1 | –2.6257 | 8.0817 | –0.0622 | –0.0595 | 0.2824 | –0.1294 | –0.0002 | 0.0755 |
| DA_MJ2 | –2.3963 | 4.7321 | –0.0377 | –0.0143 | 0.2500 | –0.0851 | 0.0509 | 0.1420 |
| DA_MJ3 | –2.6149 | 7.8898 | –0.0109 | –0.0096 | 0.2754 | –0.0734 | 0.0450 | 0.1153 |

**Panel C:** Absolute value of discretionary accruals variables

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| ABDA_MJ1 | 0.0000 | 8.0817 | 0.1221 | 0.0831 | 0.2622 | 0.0387 | 0.1492 | 0.2450 |
| ABDA_MJ2 | 0.0000 | 4.7321 | 0.1308 | 0.0676 | 0.2163 | 0.0306 | 0.1433 | 0.2779 |
| ABDA_MJ3 | 0.0000 | 7.8898 | 0.1001 | 0.0601 | 0.2568 | 0.0251 | 0.1188 | 0.2063 |

**Table B-3:** Descriptive statistics of variables used in analyses using the YM model (Obs=1,850, Time=5)

**Panel A:** Coefficient value estimated from the YMJ model (Equation 8)

$$\frac{TA_{it}}{REV_{it}} = \beta_0 + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_2 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_3 \frac{(DEP_{it} + PEN_{it})}{REV_{it}} + \varepsilon_{it}$$

| | $\beta_0$ | $\beta_1$ | $\beta_2$ | $\beta_3$ |
|---|---|---|---|---|
| Expected sign | + | − | + | − |
| All observations (YM1) | 0.2155* | −0.5089*** | 0.4991*** | −2.9665*** |
| Each industry (YM2): | | | | |
| IND_1 (Obs=200) | −0.0187 | −1.4619*** | 1.3333*** | −3.1872*** |
| IND_2 (Obs=190) | −0.0364 | −0.2422*** | 0.0733 | −0.0050 |
| IND_3 (Obs=355) | −0.0005 | −0.0948** | 0.1661*** | −0.8365** |
| IND_4 (Obs=390) | 0.5280** | 0.3753** | −0.6061*** | −4.5854*** |
| IND_5 (Obs=135) | 0.1507* | 0.1082* | −0.2531*** | −0.7539 |
| IND_6 (Obs=405) | 0.0692* | −0.4072*** | 0.4896*** | −2.6366*** |
| IND_7 (Obs=175) | 0.0592 | −0.5912*** | 0.7950*** | −2.9539*** |
| Each year (YM3): | | | | |
| 2008 (Obs=370) | 0.1677 | 0.5695** | −0.6303** | −2.3916 |
| 2009 (Obs=370) | 0.0138 | −0.2297*** | 0.0790 | −2.5304*** |
| 2010 (Obs=370) | 0.1657*** | 0.0157 | −0.0484 | −3.0958*** |
| 2011 (Obs=370) | 0.3155*** | −0.5261*** | −0.3575*** | −5.5959*** |
| 2012 (Obs=370) | 0.0900* | −0.7752*** | 1.2604*** | −1.9094*** |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

**Panel B:** Sign of abnormal or discretionary accruals variables (Equation 9)

$$DA\_YM_{it} = \frac{TA_{it}}{REV_{it}} - (\beta_0 + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_2 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_3 \frac{(DEP_{it} + PEN_{it})}{REV_{it}})$$

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| DA_YM1 | −7.5820 | 35.0833 | 0.0000 | −0.0336 | 1.1821 | −0.1444 | 0.0635 | 0.2084 |
| DA_YM2 | −8.1209 | 33.3054 | 0.0000 | −0.0175 | 1.0906 | −0.1261 | 0.0656 | 0.2244 |
| DA_YM3 | −8.0144 | 33.4490 | 0.0000 | −0.0450 | 1.0914 | −0.1399 | 0.0616 | 0.2498 |

**Panel C:** Absolute value of abnormal or discretionary accruals variables

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| ABDA_YM1 | 0.0001 | 35.0833 | 0.2727 | 0.1083 | 1.1502 | 0.0466 | 0.2194 | 0.4370 |
| ABDA_YM2 | 0.0000 | 33.3054 | 0.2646 | 0.0994 | 1.0580 | 0.0388 | 0.2337 | 0.4718 |
| ABDA_YM3 | 0.0000 | 33.4490 | 0.2817 | 0.1129 | 1.0544 | 0.0509 | 0.2209 | 0.5123 |

**Table B-4:** Descriptive statistics of variables used in analyses using the AY model (Obs=1,850, Time=5)

**Panel A:** Coefficient value estimated from the AYMJ model (Equation 10)

$$\frac{TA_{it}}{REV_{it}} = \beta_1 \frac{1}{REV_{it}} + \beta_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_3 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_4 \frac{(DEAM_{it} + PEN_{it})}{REV_{it}} + \varepsilon_{it}$$

| | $\beta_1$ | $\beta_2$ | $\beta_3$ | $\beta_4$ |
|---|---|---|---|---|
| Expected sign | + | – | + | – |
| All observations (AY1) | 7003.34* | –0.4458*** | 0.4728*** | –0.0769 |
| Each industry (AY2): | | | | |
| IND_1 (Obs=200) | 69176.13*** | –1.3964*** | 1.2628*** | –14.2193*** |
| IND_2 (Obs=190) | 40288.42*** | –0.4607*** | 0.3343*** | –0.7924** |
| IND_3 (Obs=355) | 4858.66 | –0.0944** | 0.1663*** | –0.9231*** |
| IND_4 (Obs=390) | 241666.40*** | 0.6253*** | –0.4129** | –6.1456*** |
| IND_5 (Obs=135) | 10991.91 | 0.1246* | –0.2487*** | 0.0001 |
| IND_6 (Obs=405) | 7098.01 | –0.3403*** | 0.4603*** | –2.4078*** |
| IND_7 (Obs=175) | –10806.48 | –0.5653*** | 0.7409*** | –2.2184*** |
| Each year (AY3): | | | | |
| 2008 (Obs=370) | 423924.90*** | 0.5782*** | –0.1750 | –5.9138*** |
| 2009 (Obs=370) | 33104.29*** | –0.1649** | 0.0550 | –2.3576*** |
| 2010 (Obs=370) | 65499.75*** | 0.1669 | –0.0731 | –2.8423*** |
| 2011 (Obs=370) | –61632.14*** | 0.0355 | –0.8587*** | –0.0121 |
| 2012 (Obs=370) | 42092.65** | –0.4094*** | 0.8318*** | –2.2211*** |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

**Panel B:** Sign of discretionary accruals variables (Equation 11)

$$DA\_AY_{it} = \frac{TA_{it}}{REV_{it}} - (\beta_1 \frac{1}{REV_{it}} + \beta_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{REV_{it}} + \beta_3 \frac{(\Delta EXP_{it} - \Delta PAY_{it})}{REV_{it}} + \beta_4 \frac{(DEAM_{it} + PEN_{it})}{REV_{it}})$$

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| DA_AY1 | –11.8610 | 34.8844 | 0.0047 | 0.0155 | 1.2152 | –0.0967 | 0.1011 | 0.1969 |
| DA_AY2 | –10.7052 | 25.1506 | 0.0867 | 0.0323 | 1.0419 | –0.0583 | 0.1653 | 0.4346 |
| DA_AY3 | –12.0184 | 18.8353 | 0.0278 | 0.0364 | 0.9557 | –0.0530 | 0.1473 | 0.3371 |

**Panel C:** Absolute value of discretionary accruals variables

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| ABDA_AY1 | 0.0001 | 34.8844 | 0.2680 | 0.0991 | 1.1852 | 0.0453 | 0.1856 | 0.4045 |
| ABDA_AY2 | 0.0000 | 25.1506 | 0.3044 | 0.1037 | 1.0002 | 0.0404 | 0.2658 | 0.5818 |
| ABDA_AY3 | 0.0000 | 18.8353 | 0.3020 | 0.1110 | 0.9072 | 0.0417 | 0.2615 | 0.5994 |

**Table B-5:** Summary of absolute value of discretionary accruals variable (Obs=1,850, Time=5)

| | Min | Max | Mean | Median | SD | 25th% | 75th% | 90th% |
|---|---|---|---|---|---|---|---|---|
| ABDA_DD1 | 0.0002 | 0.9481 | 0.0711 | 0.0455 | 0.0933 | 0.0188 | 0.0850 | 0.1499 |
| ABDA_DD2 | 0.0001 | 0.9640 | 0.0698 | 0.0460 | 0.0881 | 0.0212 | 0.0856 | 0.1451 |
| ABDA_DD3 | 0.0000 | 0.9405 | 0.0708 | 0.0451 | 0.0898 | 0.0206 | 0.0851 | 0.1485 |
| ABDA_MJ1 | 0.0000 | 8.0817 | 0.1221 | 0.0831 | 0.2622 | 0.0387 | 0.1492 | 0.2450 |
| ABDA_MJ2 | 0.0000 | 4.7321 | 0.1308 | 0.0676 | 0.2163 | 0.0306 | 0.1433 | 0.2779 |
| ABDA_MJ3 | 0.0000 | 7.8898 | 0.1001 | 0.0601 | 0.2568 | 0.0251 | 0.1188 | 0.2063 |
| ABDA_YM1 | 0.0001 | 35.0833 | 0.2727 | 0.1083 | 1.1502 | 0.0466 | 0.2194 | 0.4370 |
| ABDA_YM2 | 0.0000 | 33.3054 | 0.2646 | 0.0994 | 1.0580 | 0.0388 | 0.2337 | 0.4718 |
| ABDA_YM3 | 0.0000 | 33.4490 | 0.2817 | 0.1129 | 1.0544 | 0.0509 | 0.2209 | 0.5123 |
| ABDA_AY1 | 0.0001 | 34.8844 | 0.2680 | 0.0991 | 1.1852 | 0.0453 | 0.1856 | 0.4045 |
| ABDA_AY2 | 0.0000 | 25.1506 | 0.3044 | 0.1037 | 1.0002 | 0.0404 | 0.2658 | 0.5818 |
| ABDA_AY3 | 0.0000 | 18.8353 | 0.3020 | 0.1110 | 0.9072 | 0.0417 | 0.2615 | 0.5994 |

**Table B-6:** The associations of controlling shareholders with accounting quality using cofficient to estimate abnormal accrual value from the DD model (Obs=1,850, Time=5)

**Panel A:** The associations of controlling shareholders with accounting quality (Equation 12, Hyphothesis $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 |
| CS | -0.0006 | -0.0096 | -0.0044 | -0.0182*** | -0.0180*** | -0.0153** |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0012*** | 0.0010*** | 0.0010*** | 0.0012*** | 0.0010*** | 0.0010*** |
| ROA | -0.0442*** | -0.0341*** | -0.0172 | -0.0434*** | -0.0337*** | -0.0168 |
| LEV | 0.0013 | 0.0083 | 0.0173* | 0.0009 | 0.0082 | 0.0170 |
| SIZE | -0.0130*** | -0.0119*** | -0.0120*** | -0.0127*** | -0.0117*** | -0.0118*** |
| AGE | -0.0043 | -0.0022 | -0.0064 | -0.0047 | -0.0025 | -0.0066 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | 0.0092*** | 0.0092*** | 0.0072** | 0.0095*** | 0.0095*** | 0.0074** |
| CFO | -0.0005** | -0.0005** | -0.0005** | -0.0005** | -0.0004* | -0.0005** |
| VOL | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 |
| LOPC | 0.0013 | 0.0010 | 0.0012 | 0.0015 | 0.0012 | 0.0014 |
| Intercept | 0.3046*** | 0.2834*** | 0.2958*** | 0.3137*** | 0.2847*** | 0.3002*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 125.95*** | 116.36*** | 101.87*** | 135.39*** | 126.45*** | 109.30*** |
| Overall $R^2$ | 0.0867 | 0.0839 | 0.0792 | 0.0949 | 0.0912 | 0.0885 |

**Table B-6:** (Continued)

**Panel B:** The associations of types of controlling shareholder with accounting quality (Equation 13, Hyphotheses $H_2$ and $H_3$)

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 |
| FAM | 0.0006 | -0.0088 | -0.0032 | -0.0182*** | -0.0178*** | -0.0147** |
| TFAM | -0.0097 | -0.0156 | -0.0137 | -0.0218** | -0.0193* | -0.0194* |
| STO | -0.0005 | -0.0106 | -0.0063 | -0.0083 | -0.0119 | -0.0097 |
| COFIN | 0.0064 | -0.0047 | 0.0021 | -0.0083 | -0.0123 | -0.0071 |
| FRGN | -0.0050 | -0.0128 | -0.0082 | -0.0249** | -0.0236** | -0.0226** |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0012*** | 0.0010*** | 0.0010*** | 0.0012*** | 0.0010*** | 0.0010*** |
| ROA | -0.0450*** | -0.0345*** | -0.0180 | -0.0440*** | -0.0339*** | -0.0173 |
| LEV | 0.0025 | 0.0090 | 0.0185* | 0.0015 | 0.0084 | 0.0175* |
| SIZE | -0.0132*** | -0.0120*** | -0.0122*** | -0.0130*** | -0.0118*** | -0.0119*** |
| AGE | -0.0049 | -0.0026 | -0.0069 | -0.0051 | -0.0026 | -0.0070 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | 0.0093*** | 0.0092*** | 0.0072** | 0.0095*** | 0.0095*** | 0.0074** |
| CFO | -0.0005** | -0.0005** | -0.0005** | -0.0005** | -0.0004* | -0.0005** |
| VOL | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| LOPC | 0.0014 | 0.0011 | 0.0013 | 0.0018 | 0.0014 | 0.0016 |
| Intercept | 0.3069*** | 0.2842*** | 0.2976*** | 0.3163*** | 0.2846*** | 0.3002*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 127.57*** | 116.81*** | 103.52*** | 137.20*** | 127.02*** | 110.92*** |
| Overall $R^2$ | 0.0881 | 0.0847 | 0.0807 | 0.0961 | 0.0920 | 0.0869 |

**Table B-6:** (Continued)

**Panel C:** The associations of levels of voting rights with accounting quality (Equation 14, Hyphothesis $H_4$)

$$AQ_{it} = \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR25\_50_{i,t-1} + \beta_3 VR50\_75_{i,t-1} + \beta_4 VR75_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 ROA_{it} + \beta_7 LEV_{i,t-1} + \beta_8 SIZE_{i,t-1} + \beta_9 AGE_{it} + \beta_{10} SGRWT_{it} + \beta_{11} CFO_{it} + \beta_{12} VOL_{it} + \beta_{13} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 | ABDA_DD1 | ABDA_DD2 | ABDA_DD3 |
| VR10_25 | 0.0141 | 0.0038 | 0.0074 | - | - | - |
| VR25_50 | -0.0051 | -0.0129 | -0.0082 | -0.0165** | -0.0159** | -0.0142** |
| VR50_75 | -0.0080 | -0.0164 | -0.0093 | -0.0194** | -0.0194*** | -0.0152** |
| VR75 | -0.0257 | -0.0384** | -0.0302* | -0.0371*** | -0.0415*** | -0.0362*** |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0012*** | 0.0010*** | 0.0010*** | 0.0012*** | 0.0010*** | 0.0010*** |
| ROA | -0.0428*** | -0.0326*** | -0.0161 | -0.0423*** | -0.0324*** | -0.0158 |
| LEV | 0.0001 | 0.0068 | 0.0161 | -0.0003 | 0.0067 | 0.0159 |
| SIZE | -0.0126*** | -0.0115*** | -0.0117*** | -0.0125*** | -0.0115*** | -0.0117*** |
| AGE | -0.0049 | -0.0027 | -0.0068 | -0.0049 | -0.0027 | -0.0068 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | 0.0095*** | 0.0094*** | 0.0074** | 0.0095*** | 0.0094*** | 0.0073** |
| CFO | -0.0005** | -0.0004** | -0.0005** | -0.0005** | -0.0004** | -0.0005** |
| VOL | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 |
| LOPC | 0.0016 | 0.0013 | 0.0015 | 0.0016 | 0.0013 | 0.0014 |
| Intercept | 0.3010*** | 0.2793*** | 0.2926*** | 0.3117*** | 0.2822*** | 0.2982*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 139.07*** | 131.56*** | 113.04*** | 137.99*** | 131.53*** | 112.80*** |
| Overall $R^2$ | 0.0966 | 0.0946 | 0.0878 | 0.0970 | 0.0947 | 0.0881 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

ABDA_DD1 means using absolute value of discretionary accruals estimated by all observations.

ABDA_DD2 means using absolute value of discretionary accruals estimated by each industry.

ABDA_DD3 means using absolute value of discretionary accruals estimated by each year.

**Table B-7:** The associations of controlling shareholders with accounting quality using cofficient to estimate abnormal accrual value from the MJ model (Obs=1,850, Time=5)

**Panel A:** The associations of controlling shareholders with accounting quality (Equation 12, Hyphothesis $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 |
| CS | 0.0064 | 0.0215 | -0.0065 | -0.0607*** | -0.0399*** | -0.0504*** |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0066*** | 0.0020*** | 0.0073*** | 0.0067*** | 0.0019*** | 0.0074*** |
| ROA | 0.3101*** | -0.0932*** | 0.3834*** | 0.3128*** | -0.0922*** | 0.3852*** |
| LEV | 0.2295*** | 0.0235 | 0.1959*** | 0.2271*** | 0.0207 | 0.1944*** |
| SIZE | -0.0500*** | -0.0546*** | -0.0315*** | -0.0490*** | -0.0539*** | -0.0308*** |
| AGE | 0.0191 | 0.0169 | 0.0189 | 0.0178 | 0.0159 | 0.0178 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | 0.0351*** | 0.0221*** | 0.0377*** | 0.0358*** | 0.0225*** | 0.0383*** |
| CFO | -0.0013** | -0.0009** | -0.0030*** | -0.0011** | -0.0009** | -0.0028*** |
| VOL | 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0003 | 0.0001 |
| LOPC | 0.0054 | -0.0081 | 0.0100 | 0.0063 | -0.0079 | 0.0108* |
| Intercept | 0.7213*** | 0.9222*** | 0.4220*** | 0.7601*** | 0.9667*** | 0.4441*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 538.25*** | 327.97*** | 636.44*** | 556.07*** | 334.57*** | 650.84*** |
| Overall $R^2$ | 0.2619 | 0.2547 | 0.2893 | 0.2682 | 0.2510 | 0.2939 |

**Table B-7:** (Continued)

**Panel B:** The associations of types of controlling shareholder with accounting quality (Equation 13, Hyphotheses $H_2$ and $H_3$)

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{t} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 |
| FAM | 0.0016 | 0.0136 | -0.0101 | -0.0698*** | -0.0501*** | -0.0568*** |
| TFAM | -0.0151 | 0.0194 | -0.0180 | -0.0680** | -0.0266 | -0.0506* |
| STO | 0.0906* | 0.1250** | 0.0458 | 0.0443 | 0.0887* | 0.0177 |
| COFIN | 0.0099 | 0.0334 | -0.0066 | -0.0439 | -0.0451* | -0.0424* |
| FRGN | 0.0320 | 0.0421 | 0.0141 | -0.0497** | -0.0180 | -0.0438* |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0066*** | 0.0019*** | 0.0073*** | 0.0066*** | 0.0018*** | 0.0073*** |
| ROA | 0.3037*** | -0.0992*** | 0.3794*** | 0.3107*** | -0.0937*** | 0.3842*** |
| LEV | 0.2357*** | 0.0276 | 0.1999*** | 0.2321*** | 0.0230 | 0.1971*** |
| SIZE | -0.0544*** | -0.0584*** | -0.0344*** | -0.0533*** | -0.0580*** | -0.0335*** |
| AGE | 0.0181 | 0.0165 | 0.0182 | 0.0161 | 0.0158 | 0.0171 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | 0.0358*** | 0.0224*** | 0.0382*** | 0.0364*** | 0.0228*** | 0.0386*** |
| CFO | -0.0013** | -0.0010** | -0.0030*** | -0.0012** | -0.0009** | -0.0029*** |
| VOL | 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0003 | 0.0002 |
| LOPC | 0.0049 | -0.0082 | 0.0096 | 0.0071 | -0.0072 | 0.0113* |
| Intercept | 0.7910*** | 0.9790*** | 0.4683*** | 0.8235*** | 1.0264*** | 0.4830*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 548.03*** | 339.35*** | 641.52*** | 566.33*** | 347.98*** | 654.97*** |
| Overall $R^2$ | 0.2657 | 0.2595 | 0.2911 | 0.2722 | 0.2583 | 0.2956 |

**Table B-7:** (Continued)

**Panel C:** The associations of levels of voting rights with accounting quality (Equation 14, Hyphothesis $H_4$)

$$AQ_{it} = \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR25\_50_{i,t-1} + \beta_3 VR50\_75_{i,t-1} + \beta_4 VR75_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 ROA_{it} + \beta_7 LEV_{i,t-1} + \beta_8 SIZE_{i,t-1} + \beta_9 AGE_{it} + \beta_{10} SGRWT_{it} + \beta_{11} CFO_{it} + \beta_{12} VOL_{it} + \beta_{13} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 | ABDA_MJ1 | ABDA_MJ2 | ABDA_MJ3 |
| VR10_25 | 0.0590* | 0.0502* | 0.0365 | - | - | - |
| VR25_50 | -0.0149 | 0.0014 | -0.0212 | -0.0625*** | -0.0391*** | -0.0506*** |
| VR50_75 | -0.0097 | -0.0032 | -0.0203 | -0.0572*** | -0.0433** | -0.0497*** |
| VR75 | -0.0125 | 0.0024 | -0.0244 | -0.0602* | -0.0380 | -0.0540 |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0067*** | 0.0020*** | 0.0074*** | 0.0067*** | 0.0019*** | 0.0074*** |
| ROA | 0.3098*** | -0.0920*** | 0.3838*** | 0.3117*** | -0.0919*** | 0.3849*** |
| LEV | 0.2297*** | 0.0210 | 0.1954*** | 0.2280*** | 0.0203 | 0.1943*** |
| SIZE | -0.0495*** | -0.0541*** | -0.0311*** | -0.0491*** | -0.0538*** | -0.0308*** |
| AGE | 0.0183 | 0.0158 | 0.0180 | 0.0180 | 0.0157 | 0.0179 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | 0.0360*** | 0.0227*** | 0.0383*** | 0.0358*** | 0.0225*** | 0.0382*** |
| CFO | -0.0012** | -0.0009** | -0.0029*** | -0.0011* | -0.0009** | -0.0028*** |
| VOL | 0.0001 | 0.0003 | 0.0002 | 0.0001 | 0.0003 | 0.0002 |
| LOPC | 0.0064 | -0.0075 | 0.0109* | 0.0062 | -0.0079 | 0.0107* |
| Intercept | 0.7164*** | 0.9275*** | 0.4163*** | 0.7611*** | 0.9671*** | 0.4442*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 558.53*** | 338.28*** | 651.19*** | 555.03*** | 334.22*** | 649.43*** |
| Overall $R^2$ | 0.2681 | 0.2507 | 0.2939 | 0.2682 | 0.2513 | 0.2939 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

ABDA_MJ1 means using absolute value of discretionary accruals estimated by all observations.

ABDA_MJ2 means using absolute value of discretionary accruals estimated by each industry.

ABDA_MJ3 means using absolute value of discretionary accruals estimated by each year.

**Table B-8:** The associations of controlling shareholders with accounting quality using cofficient to estimate abnormal accrual value from the YM model (Obs=1,850, Time=5)

**Panel A:** The associations of controlling shareholders with accounting quality (Equation 12, Hyphothesis $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 |
| CS | -0.0528 | -0.0366 | 0.0065 | -0.2259*** | -0.2377*** | -0.2381*** |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0100*** | 0.0092*** | 0.0087*** | 0.0101*** | 0.0093*** | 0.0088*** |
| ROA | 2.5895*** | 2.3497*** | 2.3781*** | 2.5940*** | 2.3529*** | 2.3832*** |
| LEV | 1.5757*** | 1.5734*** | 1.5269*** | 1.5702*** | 1.5679*** | 1.5185*** |
| SIZE | -0.1079*** | -0.1150*** | -0.1062*** | -0.1048*** | -0.1116*** | -0.1022*** |
| AGE | 0.0531 | 0.0608 | 0.0400 | 0.0489 | 0.0564 | 0.0350 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | -0.1341*** | -0.1507*** | -0.1296*** | -0.1318*** | -0.1484*** | -0.1272*** |
| CFO | -0.0104*** | -0.0074*** | -0.0070*** | -0.0100*** | -0.0069*** | -0.0065*** |
| VOL | -0.0001 | -0.0000 | -0.0002 | -0.0001 | -0.0000 | -0.0002 |
| LOPC | 0.1097*** | 0.0743*** | 0.0873*** | 0.1126*** | 0.0771*** | 0.0899*** |
| Intercept | 0.7862 | 0.9587** | 0.8794* | 0.8632* | 1.0586** | 1.0154** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 1460.00*** | 1824.44*** | 1728.47*** | 1481.01*** | 1859.11*** | 1760.81*** |
| Overall $R^2$ | 0.3875 | 0.4258 | 0.4094 | 0.3918 | 0.4324 | 0.4162 |

**Table B–8:** (Continued)

**Panel B:** The associations of types of controlling shareholder with accounting quality (Equation 13, Hyphotheses $H_2$ and $H_3$)

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{t} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 |
| FAM | –0.1332 | –0.1005 | –0.0615 | –0.3290*** | –0.3090*** | –0.3093*** |
| TFAM | 0.1122 | –0.0127 | 0.0024 | 0.0178 | –0.1292 | –0.1514 |
| STO | 0.2755 | 0.2560 | 0.3224 | 0.1621 | 0.1054 | 0.1367 |
| COFIN | –0.0415 | –0.0022 | 0.0448 | –0.1706 | –0.1657 | –0.1515 |
| FRGN | 0.1782 | 0.2110 | 0.2948** | –0.1184 | –0.1244 | –0.1101 |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0089*** | 0.0085*** | 0.0079*** | 0.0091*** | 0.0086*** | 0.0081*** |
| ROA | 2.5667*** | 2.3124*** | 2.3315*** | 2.6069*** | 2.3526*** | 2.3796*** |
| LEV | 1.5652*** | 1.5760*** | 1.5338*** | 1.5601*** | 1.5696*** | 1.5238*** |
| SIZE | –0.1230*** | –0.1336*** | –0.1283*** | –0.1159*** | –0.1248*** | –0.1177*** |
| AGE | 0.0523 | 0.0527 | 0.0295 | 0.0495 | 0.0510 | 0.0273 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | –0.1332*** | –0.1491*** | –0.1275*** | –0.1317*** | –0.1477*** | –0.1263*** |
| CFO | –0.0105*** | –0.0074*** | –0.0071*** | –0.0100*** | –0.0069*** | –0.0066*** |
| VOL | –0.0002 | –0.0000 | –0.0002 | –0.0001 | –0.0000 | –0.0002 |
| LOPC | 0.1069*** | 0.0718*** | 0.0841*** | 0.1171*** | 0.0804*** | 0.0932*** |
| Intercept | 1.0432** | 1.2713*** | 1.2507** | 1.0238** | 1.2557*** | 1.2488*** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 1486.14*** | 1847.49*** | 1757.13*** | 1508.89*** | 1874.65*** | 1775.47*** |
| Overall $R^2$ | 0.3972 | 0.4355 | 0.4219 | 0.3990 | 0.4381 | 0.4236 |

**Table B–8:** (Continued)

**Panel C:** The associations of levels of voting rights with accounting quality (Equation 14, Hyphothesis $H_4$)

$$AQ_{it} = \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR25\_50_{i,t-1} + \beta_3 VR50\_75_{i,t-1} + \beta_4 VR75_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 ROA_{it} + \beta_7 LEV_{i,t-1} + \beta_8 SIZE_{i,t-1} + \beta_9 AGE_{it} + \beta_{10} SGRWT_{it} + \beta_{11} CFO_{it} + \beta_{12} VOL_{it} + \beta_{13} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 | ABDA_YM1 | ABDA_YM2 | ABDA_YM3 |
| VR10_25 | 0.0988 | 0.1188 | 0.1685 | – | – | – |
| VR25_50 | –0.1767 | –0.1520 | –0.1139 | –0.2565*** | –0.2478*** | –0.2500*** |
| VR50_75 | –0.0613 | –0.1129 | –0.0668 | –0.1403* | –0.2078*** | –0.2017*** |
| VR75 | –0.1399 | –0.1238 | –0.0952 | –0.2195 | –0.2195 | –0.2310 |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0103*** | 0.0094*** | 0.0089*** | 0.0102*** | 0.0093*** | 0.0088*** |
| ROA | 2.5808*** | 2.3496*** | 2.3778*** | 2.5807*** | 2.3479*** | 2.3777*** |
| LEV | 1.5858*** | 1.5725*** | 1.5263*** | 1.5857*** | 1.5736*** | 1.5247*** |
| SIZE | –0.1077*** | –0.1129*** | –0.1040*** | –0.1074*** | –0.1127*** | –0.1034*** |
| AGE | 0.0545 | 0.0582 | 0.0375 | 0.0545 | 0.0586 | 0.0374 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | –0.1302*** | –0.1471*** | –0.1259*** | –0.1309*** | –0.1481*** | –0.1268*** |
| CFO | –0.0098*** | –0.0068*** | –0.0065*** | –0.0098*** | –0.0068*** | –0.0065*** |
| VOL | –0.0001 | 0.0000 | –0.0002 | –0.0001 | –0.0000 | –0.0002 |
| LOPC | 0.1125*** | 0.0775*** | 0.0907*** | 0.1121*** | 0.0770*** | 0.0898*** |
| Intercept | 0.7898 | 0.9652** | 0.8833* | 0.8672* | 1.0607** | 1.0161** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 1485.10*** | 1856.74*** | 1762.57*** | 1486.36*** | 1859.00*** | 1761.25*** |
| Overall $R^2$ | 0.3913 | 0.4309 | 0.4142 | 0.3922 | 0.4325 | 0.4162 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

ABDA_YM1 means using absolute value of discretionary accruals estimated by all observations.

ABDA_YM2 means using absolute value of discretionary accruals estimated by each industry.

ABDA_YM3 means using absolute value of discretionary accruals estimated by each year.

**Table B-9:** The associations of controlling shareholders with accounting quality using cofficient to estimate abnormal accrual value from the AY model (Obs=1,850, Time=5)

**Panel A:** The associations of controlling shareholders with accounting quality (Equation 12, Hyphothesis $H_1$)

$$AQ_{it} = \beta_0 + \beta_1 CS_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 ROA_{it} + \beta_4 LEV_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 AGE_{it} + \beta_7 SGRWT_{it} + \beta_8 CFO_{it} + \beta_9 VOL_{it} + \beta_{10} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_t + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| CS | 0.0324 | -0.0059 | 0.0146 | -0.2159*** | -0.1633*** | -0.1638*** |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0089*** | 0.0046** | 0.0030 | 0.0089*** | 0.0047** | 0.0030 |
| ROA | 2.3741*** | 1.6227*** | 1.0295*** | 2.3805*** | 1.6258*** | 1.0347*** |
| LEV | 1.8241*** | 1.4578*** | 1.0294*** | 1.8142*** | 1.4529*** | 1.0223*** |
| SIZE | -0.1207*** | -0.1093*** | -0.0995*** | -0.1168*** | -0.1069*** | -0.0966*** |
| AGE | 0.0422 | 0.0569 | 0.0675 | 0.0371 | 0.0536 | 0.0639 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | -0.1404*** | -0.1610*** | -0.0603** | -0.1380*** | -0.1593*** | -0.0586** |
| CFO | -0.0122*** | -0.0095*** | -0.0072*** | -0.0118*** | -0.0092*** | -0.0069*** |
| VOL | 0.0002 | 0.0003 | 0.0006 | 0.0002 | 0.0003 | 0.0006 |
| LOPC | 0.1200*** | 0.1306*** | 0.1061*** | 0.1220*** | 0.1326*** | 0.1080*** |
| Intercept | 0.8321 | 0.6756 | 0.7310* | 0.9796* | 0.7608* | 0.8324* |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 1402.81*** | 1141.86*** | 543.51*** | 1418.73*** | 1154.34*** | 552.58*** |
| Overall $R^2$ | 0.3695 | 0.3273 | 0.2262 | 0.3750 | 0.3311 | 0.2311 |

**Table B-9:** (Continued)

**Panel B:** The associations of types of controlling shareholder with accounting quality (Equation 13, Hyphotheses $H_2$ and $H_3$)

$$AQ_{it} = \beta_0 + \beta_1 FAM_{i,t-1} + \beta_2 TFAM_{i,t-1} + \beta_3 STO_{i,t-1} + \beta_4 COFIN_{i,t-1} + \beta_5 FRGN_{i,t-1} + \beta_6 MTB_{i,t-1} + \beta_7 ROA_{it} + \beta_8 LEV_{i,t-1} + \beta_9 SIZE_{i,t-1} + \beta_{10} AGE_{it} + \beta_{11} SGRWT_{it} + \beta_{12} CFO_{it} + \beta_{13} VOL_{it} + \beta_{14} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{t} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| FAM | -0.0682 | -0.0676 | -0.0467 | -0.3462*** | -0.2368*** | -0.2278*** |
| TFAM | 0.3117* | 0.0854 | 0.0795 | 0.1497 | -0.0114 | -0.0286 |
| STO | 0.3844 | 0.2982 | 0.3203 | 0.1879 | 0.1924 | 0.2092 |
| COFIN | 0.0383 | -0.0003 | 0.0257 | -0.1685 | -0.1443 | -0.1374 |
| FRGN | 0.2805* | 0.2208 | 0.2494* | -0.1343 | -0.0587 | -0.0992 |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0075*** | 0.0038 | 0.0022 | 0.0076*** | 0.0039* | 0.0024 |
| ROA | 2.3682*** | 1.5941*** | 0.9966*** | 2.4052*** | 1.6307*** | 1.0390*** |
| LEV | 1.8014*** | 1.4532*** | 1.0326*** | 1.7916*** | 1.4483*** | 1.0206*** |
| SIZE | -0.1338*** | -0.1250*** | -0.1172*** | -0.1242*** | -0.1183*** | -0.1080*** |
| AGE | 0.0452 | 0.0540 | 0.0631 | 0.0433 | 0.0532 | 0.0643 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | -0.1404*** | -0.1599*** | -0.0590** | -0.1386*** | -0.1589*** | -0.0579** |
| CFO | -0.0124*** | -0.0096*** | -0.0073*** | -0.0118*** | -0.0092*** | -0.0069*** |
| VOL | 0.0002 | 0.0003 | 0.0006 | 0.0002 | 0.0003 | 0.0006 |
| LOPC | 0.1176*** | 0.1282*** | 0.1030*** | 0.1275*** | 0.1355*** | 0.1111*** |
| Intercept | 1.0554* | 0.9347** | 1.0250** | 1.0793** | 0.9325** | 0.9967** |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 1442.44*** | 1162.16*** | 563.67*** | 1462.37*** | 1169.71*** | 564.60*** |
| Overall $R^2$ | 0.3809 | 0.3366 | 0.2368 | 0.3834 | 0.3377 | 0.2360 |

**Table B-9:** (Continued)

**Panel C:** The associations of levels of voting rights with accounting quality (Equation 14, Hyphothesis $H_4$)

$$AQ_{it} = \beta_0 + \beta_1 VR10\_25_{i,t-1} + \beta_2 VR25\_50_{i,t-1} + \beta_3 VR50\_75_{i,t-1} + \beta_4 VR75_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 ROA_{it} + \beta_7 LEV_{i,t-1} + \beta_8 SIZE_{i,t-1} + \beta_9 AGE_{it} + \beta_{10} SGRWT_{it} + \beta_{11} CFO_{it} + \beta_{12} VOL_{it} + \beta_{13} LOPC_{it} + \sum \gamma Industry_{it} + \sum \delta Year_{it} + \varepsilon_{it}$$

| Variables | level of cutting point 10% | | | level of cutting point 25% | | |
|---|---|---|---|---|---|---|
| | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 | ABDA_AY1 | ABDA_AY2 | ABDA_AY3 |
| VR10_25 | 0.1837 | 0.1037 | 0.1334 | – | – | – |
| VR25_50 | -0.0993 | -0.0758 | -0.0670 | -0.2475*** | -0.1594** | -0.1746*** |
| VR50_75 | 0.0221 | -0.0905 | -0.0305 | -0.1250 | -0.1736** | -0.1375* |
| VR75 | -0.0365 | -0.0987 | -0.0245 | -0.1844 | -0.1824 | -0.1321 |
| **Firm Characteristics:** | | | | | | |
| MTB | 0.0092*** | 0.0047** | 0.0032 | 0.0091*** | 0.0046** | 0.0031 |
| ROA | 2.3648*** | 1.6277*** | 1.0282*** | 2.3660*** | 1.6271*** | 1.0296*** |
| LEV | 1.8341*** | 1.4518*** | 1.0307*** | 1.8311*** | 1.4517*** | 1.0281*** |
| SIZE | -0.1206*** | -0.1069*** | -0.0983*** | -0.1198*** | -0.1066*** | -0.0976*** |
| AGE | 0.0437 | 0.0530 | 0.0662 | 0.0433 | 0.0531 | 0.0659 |
| **Business Operation Characteristics:** | | | | | | |
| SGRWT | -0.1361*** | -0.1589*** | -0.0576** | -0.1369*** | -0.1596*** | -0.0582** |
| CFO | -0.0116*** | -0.0093*** | -0.0068*** | -0.0115*** | -0.0092*** | -0.0068*** |
| VOL | 0.0002 | 0.0003 | 0.0006 | 0.0002 | 0.0003 | 0.0006 |
| LOPC | 0.1227*** | 0.1333*** | 0.1085*** | 0.1215*** | 0.1329*** | 0.1078*** |
| Intercept | 0.8407 | 0.6771 | 0.7320* | 0.9852* | 0.7597* | 0.8357* |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| $\chi^2$ | 1426.25*** | 1153.40*** | 553.89*** | 1424.07*** | 1153.73*** | 552.54*** |
| Overall $R^2$ | 0.3741 | 0.3300 | 0.2302 | 0.3752 | 0.3310 | 0.2315 |

***,**,and * indicate statistical significance at 1%, 5%, and 10%, respectively.

ABDA_AY1 means using absolute value of discretionary accruals estimated by all observations.

ABDA_AY2 means using absolute value of discretionary accruals estimated by each industry.

ABDA_AY3 means using absolute value of discretionary accruals estimated by each year.

# BIBLIOGRAPHY


Aboody D., and Lev B. (2000). Information asymmetry, R&D, and insider gains. *The Journal of Finance*, 55(6), 2747-2766.

Aboody D., Hughes J., and Liu J., (2005) Earnings quality, insider trading and cost of capital. *Journal of Accounting Research*, 43(5), 651-673.

Aguilera R. V., and Jackson G. (2003). The cross-national diversity of corporate governance: Dimensions and determinants. *Academy of Management Review*, 28(3), 447-465.

Anderson R. and Reeb D. M., (2003) Founding-family ownership and firm performance: evidence from the S&P 500. *The Journal of Finance,* 58, 1301-1328.

Badloe S., (2011) The quality of accounting information: a case of the Netherland. (Thesis) Master of Accounting, Auditing and Control Program, Erasmus University, Rotterdam, The Netherland.

Ball R., Kothari S. P., and Robin A., (2000) The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics*, 29, 1-51.

Ball R. and Shivakumar L., (2006) The role of accruals in asymmetrically timely gain and loss recognition. *Journal of Accounting Research*, 44(2), 207-242.

Beneish M. D. and Vargus M. E., (2002) Insider trading, earnings quality, and accruals mispricing. *The Accounting Review*, 77(4), 755-791.

Barnea A., and Rubin A. (2010). Corporate social responsibility as a conflict between shareholders. *Journal of Business Ethics*, 97(1), 71-86.

Biddle G. C. and Hilary G., (2006) Accounting quality and firm-level capital investment. *The Accounting Review*, 81(5), 963-982.

Bodie Z., Kane A., and Marcus A.J., (2002) *Investments.* 6th edition, NY: McGraw-Hill.

Brown S., Hillegeist S. A., and Lo K. (2004). Conference calls and information asymmetry. *Journal of Accounting and Economics*, 37(3), 343-366.

Bricker R., Previts G., Robinson T., and Young S., (1995) Financial analyst assessment of company earning quality. *Journal of Accounting, Auditing, and Finance*, 10(3), 541-554.

Chen C. X., Lu H., and Sougiannis T. (2012). The agency problem, corporate governance, and the asymmetrical behavior of selling, general, and administrative costs. *Contemporary Accounting Research*, *29*(1), 252-282.

Cho M. H. (1998). Ownership structure, investment, and the corporate value: an empirical analysis. *Journal of Financial Economics*, 47(1), 103-121.

Claessens S., Djankov S., and Lang L. H. P. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, 58(1-2), 81-112.

Claessens S. and Fan J. P., (2002) Corporate Governance in Asia: a survey. Working paper.

Dechow P. M., (1994) Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics*, 18, 3-42.

Dechow P. M. and Dichev I. D., (2002) The quality of accruals and earnings: the role of accrual estimation errors. *The Accounting Review*, 77, 35-59.

Dechow P. M., Sloan R. G., and Sweeney A. P., (1995) Detect earnings management. *The Accounting Review*, 70(2), 193-225.

Demsetz H. (1983). The structure of ownership and the theory of the firm. *The Journal of Law and Economics*, 26(2), 375-390.

Donaldson L. and Davis J. H., (1991) Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1), 49-65

Eleswarapu V. R., Thompson R., and Venkataraman K. (2004). The impact of Regulation Fair Disclosure: Trading costs and information asymmetry. *Journal of Financial and Quantitative Analysis*, 39(02), 209-225.

Faccio M., and Lang L. H. (2002). The ultimate ownership of Western European corporations. *Journal of Financial Economics*, 65(3), 365-395.

Fan J. and Wang T., (2002) Corporate ownership structure and the informative of accounting earning in East Asia. *Journal of Accounting and Economics*, 33, 401-425.

Fama E. and Jensen M., (1983) Separate of ownership and control. *Journal of Law and Economics*, 26, 301-325.

Francis J., LaFond R., Olsson P. M. and Schipper K., (2004) Cost of equity and earning attributes. The *Accounting Review*, 79(4), 967-1010.

Garkaz M., Ghadirzade M., and Mehrazin A. (2012). Ownership structure and Information asymmetry. *Economics and Finance Review*, 2(5), 62-70.

Haw I. M., Hu B., Hwang L. S., and Wu W., (2004) Ultimate ownership, income management, and legal and extra-legal institutions. *Journal of Accounting Research*, 42, 423-462.

Healy P. M., and Palepu K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of accounting and economics*, 31(1), 405-440.

Janhom S. and Srijunpetch S., (2012). Earning quality and Thai family firms. *Journal of Accounting Professions*, 8 (21), 78-88.

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

Jones J. J., (1991) Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2), 193-228.

Khanthavit A., Polsiri P., and Wiwattanakantang Y., (2003) Did families loss or gain earning control? Thai firms after the East Asian financial crisis. Working paper.

Kiatapiwat W., (2010) Controlling shareholders, audit committee effectiveness, and earning quality: the case of Thailand. (Dissertation) Doctor of Philosophy, Department of Accounting and Information Assurance, Faculty of the Graduate School University of Maryland, College Park, Maryland, The U.S.A.

Kuntisook K., (2008) Accounting conservatism and controlling shareholder characteristics: an empirical evidence from Thailand. (Dissertation) Doctor of Philosophy Program in Accountancy, Faculty of Commerce and Accountancy Chulalongkorn University, Bangkok, Thailand.

Lang M., Raedy J. S., and Yetman M. H., (2003) How representative are firms that are cross-listed in the United States? an analysis of accounting quality. *Journal of Accounting Research*, 141(2), 363-386.

La Porta R., Lopez-De-Silanes F., Shleifer A., and Vishny R. W., (1998) Law and finance. *Journal of Political Economy*, 106, 1113-1156.

Leuz C. (2003). IAS versus US GAAP: Information asymmetry–based evidence from Germany's new market. *Journal of Accounting Research*, 41(3), 445-472.

Leuz C., Nanda D., and Wysocki P. D., (2003) Earning management and investor protection: an international comparison. *Journal of Financial Economics*, 69, 505-527.

Likitwongkajon N., (2015) The IFRSs adoption and firms' earning management in Thailand. (Thesis) Doctor of Business Administration, Graduate School Khon Kaen University, Khon Khen, Thailand.

Lipe R., (1990) The relation between stock returns and accounting earnings given alternative information. *The Accounting Review*, 65(1), 49–71.

Lo K., (2007) Earning management and earning quality. *Journal of Accounting and Economics*, 45, 350–357.

Maines L. A. and Wahlen J.M., (2006) The nature of accounting information reliability: Inferences from archival and experimental research. *Accounting Horizons*, (Fourthcoming, December).

McNichols M. F., (2002) Discussion of the quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, 77(Supplement), 61–69.

Mikhail M. B., Walther B. R., and Willis R. H., (2003) Reactions to dividend changes conditional on earnings quality. *Journal of Accounting, Auditing, and Finance*, 18(1), 121–151.

Morck R., Shleifer A., and Vishny R., (1988) Management of ownership and market valuation: an empirical analysis. *Journal of Financial Economics*, 20, 293–315.

Myers J. N., Myers L. A., and Omer T. C., (2003) Exploring the term of the auditing–client relationship and the quality of earnings: A case for mandatory auditor rotation?. The *Accounting Review*, 73(3), 779–799.

Ortiz–Molina H. and Penas M. F. (2008). Lending to small businesses: The role of loan maturity in addressing information problems. *Small Business Economics*, 30(4), 361–383.

Palepu K., Healy P., Bernard P., and Peek E., (2007) *Business analysis and valuation: IFRS edition*. South–Western Cengage Learning.

Pastoriza R. D. and Areno M. A., (2011) When agents become stewards: introducing learning in the stewardship theory. *Advances in Business and Management*. Nova, 111–122.

Peasnell K. V., Pope P. F., and Young S., (2000) Detecting earnings management using cross-sectional abnormal accruals models. *Accounting and Business research, 30(4), 313–326.*

Penman S. H. and Zhang X., (2002) Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review*, 77(2), 237–264.

Revsine L., Collins D. W., and Johnson W. B., (1999) *Financial Reporting and Analysis.* Upper Saddle River, NJ: Prentice Hall.

Richardson S., (2003) Earning quality and short sellers. *Accounting Horizons*, 17(Supplement), 49–61.

Rubin A. (2007). Ownership level, ownership concentration and liquidity. *Journal of Financial Markets*, 10(3), 219–248.

Sen P. K., (2005) Reported earnings quality under conservative accounting and auditing. *Journal of Accounting, Auditing, and Finance*, 20(3), 229–256.

Schipper K. (1989). Commentary on earnings management. *Accounting Horizons*, 3(4), 91–102.

Shleifer A. and Vishny R., (1997) A survey of corporate governance. *Journal of Finance*, 52, 737–783.

Stock News Online, (2015). Retrieve October 31, 2015, from http://www.kaohoon.com/online/content/view/12102/GSTEL%E0%B9%80%E0%B8%81%E0%B8%A1%E0%B8%95%E0%B8%B1%E0%B8%A7%E0%B9%80%E0%B8%A5%E0%B8%82%E0%B8%AB%E0%B8%A3%E0%B8%B7%E0%B8%AD%E0%B8%AD%E0%B8%B8%E0%B8%9A%E0%B8%B1%E0%B8%95%E0%B8%B4%E0%B9%80%E0%B8%AB%E0%B8%95%E0%B8%B8%E0%B8%81%E0%B8%B2%E0%B83%A3%E0%B8%84%E0%B9%89%E0%B8%B2

Stolowy H. and Breton G., (2004) Accounts manipulation: a literature review and proposed conceptual framework. *Review of Accounting and Finance*, 3, 5-92.

Thai News Agency, (2012). Retrieve October 31, 2015, from http://www.mcot.net/site/content?id=50c85859150ba0ee4700039f#.VjQxf7crLIU

The Securities and Exchange of Commission, (2013). Retrieve October 31, 2015, from http://capital.sec.or.th/webapp/webnews/news.php?id=&cboType=S&news_id=5081&sdate=2013-08-08&lang=th

The Stock Exchange of Thailand, (2014) *The listed companies handbook*. Retrieve November 22, 2015, from http://www.set.or.th/th/sitemap/for_listed_company.html

Viscusi, W. (1997). Alarmist Decisions with Divergent Risk Information. *The Economic Journal,* 107(445), 1657-1670.

Wabern J., Lavelle L., Lowry T., Zellner W. and Barrent A., (2003) Family, Inc. *Business Week*, November 10, 2003, 100-114.

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

Wasserman D., (2006) Stewards, agents, and the founder discount: executive compensation in new ventures. *Academy of Management Journal,* 49(5), 960-976.

Weiss L. A., and Wruck K. H. (1998). Information problems, conflicts of interest, and asset stripping: Chapter 11's failure in the case of Eastern Airlines. *Journal of Financial Economics*, 48, 55-97.

Wiwattanakantang Y., (2001) The equity ownership structure of Thai firms. Working paper, Center for Economic Institutions, Institute of Economic Research, Hitotsubashi University, Tokyo, Japan.

Wysocki P. D., (2005) Assessing earnings and accruals quality: U.S. and international evidence. Sloan School of Management, Massachusetts Institues of Technology, Working paper.

Yoon S., (2007) Accounting quality and international accounting convergence. (Dissertation) Doctor of Philosophy in Business Administration–Accounting, Faculty of the Graduate College of the Oklahoma State University, Stillwater, Oklahoma, The U.S.A.

Yoon S. S., Miller G., and Jiraporn P., (2006) Earnings management vehicles for Korean firms. *Journal of International Financial Management and Accounting*, 17(2), 85–109.

# VITAE

| | |
|---|---|
| Name | Miss Ausanee Ratsamewongjan |
| Date of Birth | December 21, 1978 |
| Place of Birth | Nakhonpathom |
| Previous Studies | 1996 High School, Phrapathom Wittayalai School |
| | 1999 Bachelor of Accounting (1st Class Honor) Sripatum University |
| | 2002 Master of Accountancy (Financial Accounting) Chulalongkorn University |
| Present Position | Assistant to the President, University of Phayao |
| | Accounting Lecturer |
| | School of Management and Information Sciences |
| | University of Phayao |