ความเป็นเจ้าของขั้นสูงสุดของบริษัทครอบครัวและการจัดการกำไรแท้จริง: หลักฐานเชิงประจักษ์จากประเทศไทย

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THE ULTIMATE OWNERSHIP OF FAMILY FIRMS AND REAL EARNINGS MANAGEMENT: EMPIRICAL EVIDENCE FROM THAILAND

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A Dissertation Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy Program in Accountancy
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มีนา ภัทรนาวิก : ความเป็นเจ้าของขั้นสูงสุดของบริษัทครอบครัวและการจัดการกำไรแท้จริง: หลักฐานเชิงประจักษ์จากประเทศไทย (THE ULTIMATE OWNERSHIP OF FAMILY FIRMS AND REAL EARNINGS MANAGEMENT: EMPIRICAL EVIDENCE FROM THAILAND) อ. ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ.ดร.ธัญลักษณ์ วิจิตรสาระวงศ์, 152 หน้า

งานวิจัยนี้มีวัตถุประสงค์ 2 ประการ ได้แก่ ศึกษาความสัมพันธ์ระหว่างโครงสร้างความเป็นเจ้าของแบบครอบครัวกับการจัดการกำไรแท้จริง และศึกษาว่าระดับที่แตกต่างกันของความห่างระหว่างสิทธิในกระแสเงินสดและสิทธิในการควบคุมกิจการของบริษัทครอบครัวมีผลหรือไม่ต่อการจัดการกำไรแท้จริง โดยทำการศึกษาการจัดการกำไรแท้จริงของกิจกรรมดำเนินงาน 3 ประเภท ได้แก่ การจัดการกำไรแท้จริงผ่านกิจกรรมขาย การจัดการกำไรแท้จริงผ่านกิจกรรมผลิต และการจัดการกำไรแท้จริงผ่านค่าใช้จ่ายในการดำเนินงานและบริหาร โครงสร้างความเป็นเจ้าของแบบครอบครัวในงานวิจัยนี้ถูกนิยามตามหลักเกณฑ์สิทธิในการควบคุมกิจการของผู้เป็นเจ้าของในขั้นสูงสุด ตัวอย่างที่ใช้ในงานวิจัยนี้เป็นบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยระหว่างปี 2551-2553 จำนวน 577 ตัวอย่าง เนื่องจากผลของงานวิจัยในอดีตไม่อาจสรุปได้แน่ชัดว่าความสัมพันธ์ระหว่างโครงสร้างความเป็นเจ้าของแบบครอบครัวกับการจัดการกำไรแท้จริงนั้นจะเป็นไปตามหลักสนับสนุนหรือหลักขัดแย้งกันระหว่างผลประโยชน์ของผู้บริหารและผู้ถือหุ้นอื่น ดังนั้นความสัมพันธ์ระหว่างความเป็นเจ้าของแบบครอบครัวกับการจัดการกำไรแท้จริงจึงถูกตั้งสมมติฐานแบบไม่กำหนดทิศทาง ในขณะที่ความห่างระหว่างสิทธิในกระแสเงินสดและสิทธิในการควบคุมกิจการของบริษัทครอบครัวยิ่งสูง แสดงให้เห็นว่าผู้ถือหุ้นในกิจการนั้นใช้กระแสเงินสดลงทุนในระดับที่ต่ำแต่ได้สิทธิในการควบคุมกิจการในระดับที่สูง ซึ่งงานวิจัยนี้ได้ตั้งสมมติฐานความสัมพันธ์ในทิศทางเดียวกัน นั่นคือ ยิ่งระดับความห่างระหว่างสิทธิในกระแสเงินสดและสิทธิในการควบคุมกิจการยิ่งมาก ยิ่งมีการจัดการกำไรแท้จริงมากขึ้น

ผลการศึกษาเป็นไปตามที่ตั้งสมมติฐาน นั่นคือบริษัทที่มีโครงสร้างการถือหุ้นขั้นสูงสุดโดยกลุ่มครอบครัวจะมีการจัดการกำไรแท้จริงมากกว่า ทั้งนี้พบการจัดการกำไรแท้จริงผ่านกิจกรรมขายเท่านั้น และเป็นการจัดการกำไรแท้จริงในทิศทางจัดการกำไรแบบเพิ่มขึ้น และพบว่าบริษัทครอบครัวที่มีระดับความห่างระหว่างสิทธิในกระแสเงินสดกับสิทธิในการควบคุมกิจการยิ่งสูง ยิ่งพบการจัดการกำไรแท้จริงสูงขึ้น ทั้งนี้พบการจัดการกำไรแท้จริงผ่านกิจกรรมขายในทิศทางแบบเพิ่มขึ้น และผ่านกิจกรรมค่าใช้จ่ายในการดำเนินงานและบริหารทั้งแบบเพิ่มขึ้นและลดลงโดยรวมบริษัทครอบครัวที่มีระดับความห่างระหว่างสิทธิในกระแสเงินสดสิทธิในการควบคุมกิจการแตกต่างกันจะรับรู้ต้นทุนในการจัดการกำไรแท้จริงในแต่และกิจการแตกต่างกัน

ภาควิชา การบัญชี ลายมือชื่อนิสิต.....

สาขาวิชา การบัญชี ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก.....

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MENA PHATTARANAWIG: THE ULTIMATE OWNERSHIP OF FAMILY FIRMS AND REAL EARNINGS MANAGEMENT: EMPIRICAL EVIDENCE FROM THAILAND. ADVISOR: ASST. PROF. THANYALUK VICHITSARAWONG, Ph.D., 152 pp.

This study examines, firstly, the association between family ownership structure and real earnings management and, secondly, investigates whether different degrees of cash flow-control rights divergence of family ownership affects real earnings management. Three types of real operating manipulation are considered: sales manipulation, production manipulation, and discretionary expense manipulation. Family ownership is defined based on the "ultimate" control rights. The unique data set covers 577 firm-years observation based on Thai listed company data from the Stock Exchange of Thailand (SET) over the period 2008-2010. Given the inconclusive extant studies based on two competing notions: the alignment effect and the entrenchment effect, the directional relationship between family ownership structure and real earnings management is predicted with no direction. In contrast, the high degree of divergence allows family shareholders to have relatively low committed cash flow compared to their control right, thus inducing entrenched motivation for family owners. This study hypothesizes that the degree of cash flow-control rights divergence of family firms is positively associated with the level of real earnings management.

Consistent with the hypotheses this study, firstly, finds that firms with (without) ultimate family shareholders are more (less) likely to engage in real earnings management. This association is found only in sales manipulation activity and the manipulation is an "upward" direction. Secondly, this study finds that family firms with a higher (lower) degree of cash flow-control rights divergence are more (less) likely to engage in real earnings management. The real earnings manipulation is employed through sales manipulation in an "upward" direction and discretionary expense activities in both "upward and downward" directions. Overall, family firms with different degrees of cash flow-control rights divergence perceive costs associated with each manipulation activity differently.

Department : Accountancy Student's Signature .....

Field of Study : Accounting Advisor's Signature .....

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CHAPTER I

INTRODUCTION

This study examine whether family firms engage in real earnings manipulation through different operating activities, and whether the different degrees of cash flow-control rights divergence affect real earnings manipulation, using a unique dataset over the period 2008-2010. Prior studies investigating family firms largely defined family firms in terms of an immediate owner but not an ultimate one (Warfield, Wild, and Wild, 1995; Fan and Wong, 2002; Ali, Chen, and Radhakrishnan, 2007; Kuntisook, 2008). This study explores family ownership based on their "ultimate" control rights. The immediate owner is simply obtained by considering the percentage of shares *directly* held by the given owner, whereas the ultimate owner is a shareholder who is not controlled by anyone else. Tracing along the holding chains to obtain the shareholder who is not controlled by anyone else heightens the investigation of the complicated holding structure of family firms in Thailand. Specifically, the imbalance between cash flow and control rights obtained from masking themselves behind intermediate firms along the holding chain is the key attribute when considering the important characteristics of family firms.

Additionally, though the relationship between family ownership structure and earnings management has been extensively studied in recent years (Ali et al., 2007; Wang, 2006; Haw, Hu, Hwang, and Hu, 2004; Fan and Wong, 2002; Warfield et al., 1995), but all of them have focused on accrual manipulation. This study extends the research on the relationship between family ownership structure and earnings management by focusing on another technique of earnings manipulation: "real" earnings management. Real earnings management is examined by considering sales manipulation,

production manipulation, and discretionary expense manipulation. Incentives and costs associated with both accrual and real earnings manipulation are also considered.

This research finds a positive association between the level of real earnings management through sales manipulation and family ownership, supporting the first hypothesis that family ownership structure is associated with a level of real earnings management. However, there are insignificant results for production and discretionary expense activities, indicating that family ownership has no influence on firms' earnings manipulation through these two operating activities. Besides, the increase in the level of real earnings management through sales activity due to the family ownership structure is found to be employed in the "upward" direction.

The empirical results also show a positive association between the level of real earnings management and the degree of cash flow-control rights divergence of family firms, supporting the second hypothesis. This finding indicates that family firms with higher (lower) degrees of cash flow-control rights divergence are more (less) likely to engage in real earnings management. However, positive and significant results are found only for real earnings management through sales manipulation and discretionary expense activities. Additionally, the higher level of real earnings management due to the higher degree of cash flow-control rights divergence of family firms is shown in the "upward" direction for sales manipulation activity and both "upward" and "downward" directions for discretionary expenses activity. The different results among three manipulation activities indicate that family firms with different degrees of cash-flow control rights divergence perceive the costs that each manipulation activity may possibly impose on their firms differently.

1.1 MOTIVATION

A large fraction of public and private firms around the world are family controlled. Even among the Standard and Poor (S&P) 500 and Fortune 500 companies, which are the least likely to be family owned, one third have founding family members actively involved in the businesses (La Porta, Lopez-De-Silances, and Shleifer, 1999, and Anderson and Reeb, 2003a). Particularly in East Asian countries, shares in most listed firms are typically concentrated in the hands of a few large shareholders or likely affiliated with a business group controlled by one family (Fan and Wong, 2002).

Like other East Asian countries, family ownership structure is the most predominant structure in Thailand. There were only ten families who controlled half of the sample's corporate assets in the study by Claessens, Simeon and Larry (2000). Only 150 leading families control most of the companies in Thailand (The Brooker group, 2003). Recently, Kuntisook (2008) examined a sample during the period 2000-2006 and found that 95.5% of total sample drawn from listed firms in the Stock Exchange of Thailand (SET) had ownership concentrated in the hands of large shareholders, where 60.5% and 35% of them were founding family and family members, respectively.

A number of extant studies examine the relationship between ownership structure and earnings quality (Fan and Wong, 2002; Ali, Chen, and Radhakrishnan, 2007), ownership and accounting conservatism (Kuntisook, 2008) and ownership structure and earnings managements (Warfield, Wild, and Wild, 1995; Wang, 2006). Most of them examine the ownership structure of family firms in terms of an immediate owner but not an ultimate owner. The immediate ownership structure is obtained by simply considering the percentage of shares *directly* held by family members. Typically, families obscure or

mask their holdings through more complicated holding structures. Hiding themselves behind intermediating firms allows them to exercise greater control rights compared to relatively low cash flow rights. That this imbalance between cash flow rights and control rights could possibly motivate families is an alternate view to that obtained from considering immediate ownership structure by focusing only on control rights.

There is the notion that the agency problem in family firms is shifted away from a Type I problem, the conflict of interest between managers and shareholders, to a Type II agency problem. Type II agency costs arise from conflicts of interest between minority shareholders and controlling owners, especially family members, who frequently possess control power in excess of their cash flow rights. The divergence of control rights from cash flow rights is the key attribute in asserting such a notion. This suggests that immediate ownership is insufficient for defining the ownership and control structure. Thus, an estimation of the control divergence of the controlling shareholders requires information on the ownership and control of the firm's ultimate rather than immediate owners. An ultimate owner is a shareholder who has determining voting rights in the firm and who is not controlled by anyone else. This research examines the ownership of family firms in terms of an ultimate owner rather than an immediate one.

The most remarkable issue in studying the relationship between ownership structure and earnings quality or earnings management is that, all of such extant prior studies reviewed (Ali et al., 2007; Wang, 2006; Haw, Hu, Hwang, and Hu, 2004; Fan and Wong, 2002; Warfield et al., 1995) examine the only one technique of earnings manipulation: accrual management (hereafter Accrual EM). Another interesting method of earnings manipulation is definitely set aside: real earnings management (hereafter Real

EM). There are a number of studies providing congruent evidence that firms use multiple earnings management strategies (Zang, 2006; Cohen, Dey, and Lys, 2008; and Cohen and Zarowin, 2010).

The main difference between Accrual EM and Real EM strategies is that Accrual EM does not consume cash and is likely to impose costs on a firm only in a short run. On the other hand, when firms change the timing or structuring of real business transactions to alter reported earnings, i.e., Real EM, the deviation from optimal business operations jeopardizes the firm's competitive advantage, especially in the long run. This may lead managers to conclude that Real EM is relatively more costly than Accrual EM. However, there are certain reasons to believe that managers are constrained from resorting to Accrual EM and motivated to resort Real EM instead such as regulation and litigation risk and the limitation of accrual resources. Thus, managers' decisions to employ these substitutable earnings management strategies are typically associated with trading off the set of costs against the benefits of each strategy.

One of the important characteristics of family firms is the long-term horizon of investment. As previously indicated, Real EM is more likely to impose greater costs on firms, especially in the long run, but it is somehow necessary when Accrual EM is restricted. Besides, ultimate ownership provides a different level of divergence between cash flow rights and control rights of families and could possibly affect how families trade off costs and benefits between the two strategies. Taken together, the relationship between the ultimate ownership of family firms and earnings management through real manipulation activities becomes the empirical question.

1.2 RESEARCH OBJECTIVES

The research objectives here are twofold: first, to examine whether family firms engage in earnings management through real activities based on their ultimate control rights; second, to examine whether family firms engage in earnings management through real activities given the imbalance between their ultimate cash flow rights and ultimate control rights (cash flow-control rights divergence).

1.3 CONTRIBUTIONS

This research contributes to the earnings management literature in several ways. First, it is the only one of a number of extant studies (Ali et al., 2007; Wang, 2006; Haw et al., 2004; Fan and Wong, 2002; Warfield et al., 1995) examining the relationship between earnings management and family firms which considers two techniques of earnings management. Though this research focuses on earnings management through real activity, numerous cost determinants of both accrual management and real activity management and incentives inducing such manipulations are simultaneously considered.

Second, previous research leaves several questions unanswered on the characteristics of family firms by considering family ownership in terms of immediate ownership but not ultimate ownership. Considering immediate ownership structure means looking only at cash flow rights and implies one share-one vote. However, in most cases, families obscure their holdings through complicated shareholding structures, allowing them to obtain more voting rights at a relatively lower cost in terms of equity investment. This cash flow-control rights divergence requires examination of the ultimate ownership of firms in order to effectively identify the cash flow and control structure of family firms. Therefore, this research examines family firms in terms of their ultimate cash flow

rights and control rights. This unique ownership data set is more likely to provide greater insight into and understanding of family firms.

A better understanding of characteristics of the family firms, which dominate business in Thailand, and of the impact of such characteristics on earnings management through real activities should be of interest to various parties including local and foreign investors. Ewert and Wagenhofer (2005) propose an analytical model wherein Real EM increases when tightening accounting standards, making accruals management more difficult. Cohen et al. (2008) provide congruent evidence showing that firms are likely to switch from Accrual EM to Real EM in response to the passage of SOX. This consistent evidence implies that Real EM is one potential consequence of regulations intended to restrict discretion in accounting earnings management. This argument should also be of interest to accounting regulators and standard setters in Thailand, given the carefully consideration of both Real EM and Accrual EM at the same time. Since previous studies have found that most Thai business are dominated by firms controlled by one family (Claessens et al., 2000: The Brooker group, 2003; Kuntisook, 2008), the efforts of regulators to restrict one technique of manipulation could possibly induce employment of another technique by family members. This may impose greater costs on investors as well as being potentially harder to detect.

The remainder of this dissertation is organized as follows: Chapter II reviews relevant prior literature; Chapter III presents theory; Chapter IV discusses hypotheses development; Chapter V presents the research design, providing details about sample selection, data, model specification, and variable measurement; Chapter VI presents

empirical results; while Chapter VII concludes the dissertation and discusses the limitations of the research.

CHAPTER II

LITERATURE REVIEW

2.1 DEFINITION OF REAL EM

A large body of archival research presents substantial evidence that executives engage in earnings management. One means of managing earnings is by taking advantage of the accounting discretion in the GAAP to manipulate accruals through accounting choices and estimates with no direct cash flow consequences (Healy, 1985; Burgstahler and Dichev, 1997; Healy and Wahlen, 1999; Dechow and Skinner, 2000). However, since both accruals and operating cash flows are components of earnings, the manipulation of earnings can be conducted through accruals and/or operating cash flows.

Most extant research has traditionally focused on Accrual EM involving within-GAAP accounting choices that try to "obscure" or "mask" true economic performance (Dechow and Skinner, 2000). While it directly influences the amount of accounting accruals, Accrual EM has no direct effect on cash flow. In contrast, the unique feature of Real EM is that it involves management's attempts to alter reported earnings by making suboptimal decisions on the timing and scale of the underlying business activities. While Accrual EM directly influences only accruals but not cash flows, Real EM has a direct effect on current and future cash flows as well as on accounting accruals.

Schipper (1989) was one of the first to include real earnings management in the definition of earnings management as:

"A purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral

operation of the process)…. Under this definition, earnings management could occur in any part of the external disclosure process, and could take a number of forms. A minor extension of this definition would ***encompass "real" earnings management****, accomplished by timing investment or financing decisions to alter reported earnings or some subset of it"*

Gunny (2005), classifies earnings management into three categories; fraudulent accounting, accruals management, and real earnings management. Fraudulent accounting involves accounting choices that violate generally accepted accounting principles (GAAP). Accruals management involves taking advantage of the accounting discretion in the GAAP to obscure or mask true economic performance. Real earnings management occurs when managers undertake actions that deviate from normal operating practice.

Following Ewert and Wagenhofer (2005), real earnings management is defined as adjusting the timing, magnitude, and/or structure of real business transactions with an intent to alter reported earnings.

Roychowdhury (2006) defines real earnings management as:

*"****Departures from normal operational practices****, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations. These departures do not necessarily contribute to firm value even though they enable managers to meet reporting goals."*

As mentioned above, these definitions of earnings management suggest that the manipulation of reported earnings by exploiting the accounting discretion allowed under the GAAP is Accrual EM In contrast, Real EM involves management's attempts to alter

reported earnings by adjusting the timing and scale of underlying business activities and those changes of real transactions deviate from the optimal plan of action, directly affecting current and future cash flows and thus imposing a real cost to the firm.

2.2 REAL EM THROUGH VARIOUS ACTIVITIES

According to Xu, Taylor, and Dugan (2007), firms are found to manage earnings through manipulation of three main activities: operating, investing, and financing activities.

First, earnings management using operating activities can be done by manipulation of production, inventory, and sales, as well as discretionary expenditures, including research and development expenditures (R&D) and selling general, and administrative expenses (SG&A). Second, manipulation through investing activities can be accomplished by selling long-term assets and structuring investing transactions to take advantage of alternative accounting choices. Third, earnings manipulation using financing activities is performed by manipulation through stock repurchases, stock options, financial instruments, including hedges and debt-equity swaps, and structuring of financing transactions to take advantage of alternative accounting choices.

Manipulation through investing and financing activities require firms to have specific available resources such as financial instruments, which are not generally available to most firms in every industry. Besides, structuring of investing transactions is more likely to require managers to perform a long period of advance planning. These specific requirements of manipulation through investing and financing activities are not concurrent among general firms. Besides, as suggested by Roychowdhury (2006), the

manipulation of earnings in the form of operation activities has received little attention to date and operation activities are general activities that potentially able to be manipulated for all firms. Thus this study will focus only on the management of operational activities composed of the following three manipulation methods.

Sales Manipulation through increased (decreased) price discounts or more (less) lenient credit terms to manage earnings upwardly (downwardly)

In order to manage earnings upwardly by boosting sales, additional sales are generated or sales from a future period are accelerated into the current period by offering "limited-time price discounts". Total earnings in the current period are higher as the additional sales are booked, assuming positive margins. But when the firm re-establishes the old prices, the additional sales as a result of that discounts are likely to disappear or customers are lead to expect such discounts in future periods as well. Thus, the potential cost of sales manipulation includes loss in future profitability or lower margins on future sales.

Furthermore, offering more lenient credit terms is another way to temporarily boost sales volumes. For example, retailers and automobile manufacturers often offer lower interest rates (zero-percent financing) toward the fiscal year end. These are essentially price discounts and lead to lower cash inflow over the life of the sales. These sales manipulation activities will lead to lower current-period cash flow from operations and higher production costs than what is normal given the sales level.

Contrarily, downward manipulation, by lowering sales, decelerates sales in the current period by cancelling limited-time price discounts or tightening credit terms.

During sales deceleration, firms possibly lose their customers to other competitors. Thus, the potential cost of downward sales manipulation includes deterioration in firm's competitive advantage in the long run. These downward manipulations through sales activity will lead to higher current period cash flow from operations and lower production costs than what is normal given the sales level. Prior research documents firms' manipulation of sales to smooth earnings and to meet earnings targets. Jackson and Wilcox (2000) show that managers grant sales price discounts in the fourth quarter in order to avoid losses and year-to-year earnings decreases. Roychowdhury (2006) finds evidence that firms engage in sales manipulation and overproduction to avoid reporting losses and to meet analysts' earnings forecasts.

Production Manipulation through deviating from optimal level of production

In order to manage earnings upwardly, managers of manufacturing firms can manipulate cost of goods sold (hereafter COGS) expense by producing more goods than are required to meet expected demand. By overproduction, fixed overhead costs are spread over a larger number of units, thus lowering fixed cost per unit. As long as the reduction in fixed cost per unit is not offset by any increase in marginal cost per unit, total cost per unit will decline. This decreases the reported cost of goods sold (*COGS*) and the firm can report higher operating margins. However, the firm will still incur other production and holding costs that will lead to higher annual production costs relative to sales, and lower cash flows from operations given sales level. In contrast, managers can manage earnings downwardly through manipulating production levels by producing fewer goods than necessary to meet expected market demand. By underproduction, fixed overhead costs are spread over a smaller number of units, thus increasing fixed cost per unit. Firms can then report lower operating margins due to this increase in reported

COGS. Other production and holding costs will decrease due to the lower level of production; this will lead to lower annual production costs relative to sales, and finally increase cash flow from operations. However, the insufficient inventories induced by this underproduction will impose considerable costs on firms' competitive advantage in the long run. Since firms produce fewer goods than their expected market demand, it is likely that they are losing opportunities to generate sales, and will eventually lose their market share to other competitors. Thomas and Zhang (2002) provide evidence consistent with managers overproducing to decrease reported COGS but they cannot rule out the possibility of adverse economic conditions as an alternative explanation.

Discretionary expenditures manipulation through deviating from optimal level of SG&A spending

Discretionary expenses are defined as the sum of R&D and SG&A (including advertising). Since discretionary expenses are expensed immediately rather than capitalized, firms are found to reduce reported expenses to manage earnings upwardly. This is most likely to occur when such expenditures do not generate immediate revenues and income. If a manager decided to cut such expenditures like employee training programs intended to increase human capital and commitment of employees, advertising intended to enhance brand loyalty, or research and development spending intended to gain competitive advantage in the innovation, the economic consequences may not materialize in the short run but would do in the long run. On the other hand, firms are likely to overspend on SG&A expenses in order to manage earnings downwardly. Inefficient spending on expenditures like immoderate employee training courses that waste human capital and deteriorate commitment of employees, unnecessary advertising that cannot

enhance brand loyalty, or extravagant R&D that cannot strengthen competitive advantage in innovation would possibly realize economic consequences in the long run.

Extant studies provide evidence that managers cut discretionary spending to achieve earnings targets. Baber and Fairfield (1991) provide evidence that R&D spending is significantly less when spending jeopardizes the ability to report positive or increasing income in the current period. Dechow and Sloan (1991) find that CEOs with earnings-based incentive compensation reduce R&D expenditures to increase current reported earnings in their final year of office. The evidence suggests that earnings-based incentives induce managers to reduce discretionary expenditures to increase short-term performance. Gunny (2005) shows that, in addition to R&D expenditures, managers also manipulate SG&A expenses to increase current period income. Roychowdhury (2006) finds evidence that firms often reduce discretionary expenditure (both R&D and SG&A) in order to avoid reporting losses and missing analysts' forecasts.

2.3 DETERMINANTS OF REAL EM

Just as there are reasons why managers engage in accrual earnings manipulation, there are several relevant incentives and costs explaining real earnings manipulation. The literature to date has identified two certain incentives to manage reported earnings through real activities: capital market incentives and the role of analysts' forecasts.

The most important incentive affecting earnings management activities is the capital market incentive (Dechow and Skinner, 2000; Field, Lsy, and Vincent, 2001; Healy and Wahlen, 1999). Typically, to beat or meet analysts' forecasts induces a strong incentive for managers to manage earnings. In some specific situations such as the

issuance of new equity, managers are likely to boost stock prices, as they believe that investors cannot see through earnings management at the time of equity issuance. Legoria (2000) provides evidence that pharmaceutical companies manipulate their capital expenditures to meet analysts' earnings forecasts. Roychowdhury (2006) provides consistent evidence that firms inflate earnings by engaging in real earnings manipulation in order to avoid reporting annual losses or to meet analysts' forecasts. Gunny (2010) finds evidence that Real EM is positively associated with firms just meeting two earnings benchmarks (zero and last year's earnings). Cohen et al. (2010) provide the evidence that habitually beating earnings targets and having many shares outstanding positively influence firms' tendency to manage earnings through both Accrual EM and Real EM. All of these coherent results from the extant research also confirm the importance of capital market incentives.

Analysts' forecasts are viewed as having two distinct roles: the scrutiny and monitoring role, and the incentive inducing role. The former is based on the notion that, since financial analysts follow firms, then such followed firms are potentially subject to strict scrutiny and monitoring and this restricts earnings management activities. In contrast, the latter argues that, when firms are followed by financial analysts and their earnings are forecast, those forecast earnings numbers become the important benchmarks that induce managers to manage earnings to meet or beat such benchmarks.

2.4 CONSEQUENCES OF REAL EM

Prior literature provides inconclusive results on the consequences of deviation from normal business activities. Intuitively, manipulation of operating activities such as R&D, capital investments, and production causes deviation from normal operational

practices and thus could potentially lead to a decline in subsequent performance. In contrast, operational discretion may be exercised to meet benchmarks in an effort to enhance a firm's credibility and reputation among stakeholders (Burgstahler and Dichev, 1997). If reputation is enhanced, relationships with customers, suppliers, and/or creditors become stronger, enabling the firm to perform better in the future.

Consistent with the notion that Real EM should convey negative long-term consequences about future operating performance, Gunny (2005) examines the consequences of RM (reducing R&D and SG&A expenditures, cutting prices to boost sales, and recognizing gains from sales of long-term assets) on subsequent operating performance. The results show that firms engaged in Real EM experience a significant negative decline in their subsequent earnings and operating cash flows. Zang (2006) finds that a high level of Real EM is a leading indicator of adverse future performance. Cohen and Zarowin (2010) provide evidence that SEO firms experience a decline in post-SEO performance due to RM more severe than that due to AM. According to Gunny (2010), this negative association suggests that managers opportunistically use earnings management to damage shareholders' wealth (i.e., managerial opportunism).

However, there are many studies that provide evidence inconsistent with above, showing rather that RM does not have a negative effect on subsequent operating performance. Bens et al. (2002) find only weak evidence of a subsequent decline in ROAs following a reduction of R&D and capital spending as a result of stock option exercises. Taylor and Xu (2010) identify firms that may have engaged in RM manipulate their operating activities only occasionally and such manipulation does not have, on average, a significant negative consequence on a firm's subsequent operating performances. These

results coherence with Tan and Jamal (2006) who suggested managers may engage in earnings manipulation to communicate their private information about firms' prospects and they carefully evaluate the costs and benefits of Real EM to avoid hurting future operating performance.

Gunny (2010) and Chen and Rees (2010) find congruent evidence about the positive association between Real EM and future operating performance. Gunny (2010) shows that firms engaging in Real EM to just meet earnings benchmarks have higher subsequent performance when compared to firms that do not engage in Real EM and miss or just meet the earnings benchmarks. Besides, Chen et al. (2010) also provide consistent and interesting evidence showing that firms using Real EM exclusively to meet analysts' expectations outperform firms using Accrual EM in the longer term and perform no worse than firms that meet expectations without earnings management. Gunny (2010) suggests a positive association consistent with the notion that managers use operational discretion to attain benefits that allow better future performance or to signal future firm value.

Regarding the inconclusive results for what is the consequence of Real EM, managers' intentions in using Real EM as signaling or opportunistic mechanism could explain the difference consequences of such activities. However, this research does not focus on examining the consequences of Real EM, but only on taking the conventional perception of the consequences of deviation from normal business activities into account.

2.5 ACCRUAL EM VERSUS REAL EM: THE ALTERNATIVE MEANS OF EARNINGS MANAGEMENT

Since reported earnings are the results of the underlying business operations and accounting choices in recording the transactions, engaging the manipulation of earnings may be done through Accrual EM and/or Real EM. For managers, choosing between the alternative means of earnings manipulation means trading off the cost and benefits between Accrual EM and Real EM. Prior studies provide evidence that firms use multiple earnings management strategies (Zang, 2006; Cohen et al.,2008; and Cohen and Zarowin, 2010). Accrual EM does not consume cash. On the other hand, when firms change the timing or structuring of real business transactions to alter reported earnings, the deviation from optimal business operations jeopardizes the firm's competitive advantage. From this standpoint, Real EM seems to bear greater costs than Accrual EM.

Even though Real EM potentially imposes greater long-term costs on a firm in terms of endangerment of competitive advantage, there are reasons to believe that managers expect to bear greater private costs as well, at least in the short term, when they engage in Accrual EM. These reasons constrain managers from resorting to Accrual EM and enhance the tendency to resort to Real EM. The reasons are related to: regulation and litigation risk concern and the limitation of available resources risk concern.

First, regarding regulation and litigation risk concern, Accrual EM is more likely to draw auditor or regulator scrutiny than real decisions about operating activities. Therefore, Real EM becomes relatively less costly and discourages accruals management. The extent to which accounting standards are tightened or strictly enforced enhances the incentive of managers to switch from Accrual EM to Real EM (Ewert and Wagenhofer,

2005). Some specific regulatory environments represent an increase in regulatory scrutiny; for example, the passage of the Sarbanes-Oxley Act (SOX) and the seasoned equity offerings (SEOs) period, strengthen the notion that Accrual EM becomes somewhat costlier than Real EM with regards to the regulation scrutiny concern (Cohen et al., 2008; Cohen and Zarowin, 2010, respectively).

Regarding the litigation risk concern, Accrual EM is subject to examination by auditors and potentially by forensic accountants and the courts, who have accounting standards as the benchmark. Thus, managers are willing to engage in Real EM, though it is costly to the firm, because such actions are harder to detect. With the uncertainty inherent in business environments, there is no benchmark to determine what should have been done in any particular situation. Especially, in law, managers and boards of directors are protected by the ‘‘business judgment rule’’ that makes it difficult to find them liable for bad business decisions. This is consistent with evidence provided by Zang (2007) showing that managers switch from Accrual EM to Real EM in response to increased litigation risk after the filing of federal class action securities lawsuits against their firms.

Second, relying solely on Accrual EM may lead managers to risk. Especially, in the case where the realized year-end shortfall between unmanipulated earnings and the desired threshold can exceed the amount by which it is possible to manipulate accruals or in the case of running out of accruals. It may seem to the executives that only employing accrual manipulation is not enough. For example, firms aggressively managing earnings through accruals will finally face constraints in their ability to further inflate accruals since they run out of accrual discretion. Accrual EM then becomes more difficult. Consequently, the marginal cost of accruals management may exceed that of

manipulation of business activities and discourage accruals management. There are extant studies confirming that the constraint of limited accruals will cause firms to experience with Real EM. Huang, Lenk, and Szezesny (2006) provide evidence that firms resort to manipulation of real business activities when they run out of accounting accruals to further inflate earnings. Barton and Simko (2002) and Cohen and Zarowin (2010) find congruent evidence that the level of current net operating assets (NOA) reflecting previous earnings management is negatively related to managers' ability to upwardly manage accrual earnings and is positively related to firm's tendency to use Real EM.

Another interesting explanation is management preference. Surveys conducted by Bruns and Merchant (1990) and Graham, Harvey, and Rajgopal (2005) find congruent evidence that financial executives indicate a greater willingness to manipulate earnings through real activities rather than through accruals. Graham et al. (2005) surveyed 400 U.S. corporate executives and found that 80% of surveyed executives admitted being willing to reduce discretionary expenditures on R&D and advertising to meet an earnings target and over half of were willing to postpone new projects to meet an earnings target, even though such manipulations potentially reduce firm value.

To summarize, regarding the definition of Real EM, these two types of earnings manipulations are substitutable and typically resorted to based on managers trading off of certain costs and incentives. Thus, examining just one manipulation technique separately may not fully explain earnings management activities. This research complies with this notion by incorporating the set of associated costs and incentives of both types of earnings manipulation into the analysis.

2.6 FAMILY FIRMS-THE ULTIMATE OWNERSHIP

The nature of contracting is affected by the degree of ownership concentration, creating agency problem between managers and outside shareholders. Firms with concentrated ownership generally have large shareholders owning significant amounts of outstanding shares. As Fan and Wong (2000) propose, share ownership can be viewed as a property right categorized in three types: the decision right of deploying a firm's assets (i.e., the control or voting right), the right to earn income (i.e., the cash flow right) and the right to transfer the share and the associated control and cash flow rights to another party. Thus, shareholders with a large number of shares can leverage their voting power and affect strategic decision making.

Owners who own a significant amount of shares can typically exercise control over firms and are called controlling shareholders. Controlling shareholders may be a family or an individual, the state, or a widely held financial institution such as bank or an insurance company. The most predominant ownership pattern is family control (La Porta et al.,1999; Claessens et al., 2002; and Haw et al., 2004).

In a widely held firm, an agency problem arises from the separation of ownership and management (Type I agency problem). The separation of managers from shareholders may lead to managers not acting in the best interest of the shareholders. On the other hand, when ownership is concentrated to a level at which an owner obtains effective control of the firm, as is in the case in East Asian countries, the nature of the agency problem shifts away from a Type I agency problem: manager-shareholder conflicts, to a Type II agency problem: conflicts between the controlling shareholder (who is also the

manager) and minority shareholders. Controlling shareholders may seek private benefits at the expense of minority shareholders.

Typically, obtaining excess control over firms is achieved through various means: a dual class of voting right, complicated ownership structures (pyramiding schemes and cross-holding ownership), and participation in management by family members. The first means of exerting excess control over a firm is a dual class share structure (one class of common stock having more voting power per share than another, but both classes having similar cash flow rights per share) allows controlling shareholders to control a firm while holding only a minority equity stake. Thus, controlling shareholders in dual class firms are able to make decisions that provide them with private benefits while avoiding the proportionate cash flow consequences that would affect them if their voting rights were similar to their cash flow rights. Several empirical studies show that dual class firms face severe agency problems, but multiple classes of share are rare in Asian countries. La Porta et al. (1999) and Claessens et al. (2000) find congruent evidence that shares with superior voting rights are almost never employed in eight East Asian sample countries. The results suggest that multiple classes of shares are not a central mechanism of separating ownership and control. Like other East Asian countries, this dual class ownership structure is not allowed in Thailand.

The second means to achieve excess control over firms is through complicated ownerships structures (i.e., stock pyramids and cross-holding structures). With regards to the notion that Type II agency costs arise from conflicts of interest between minority shareholders and controlling owners who frequently possess controlling power in excess of their cash flow rights, the divergence of control rights from cash flow rights is the key

attribute when asserting such a notion. In order to indicate the *real* family owners, considering only immediate ownership is insufficient. Intuitively, the *real* family owners are possibly associated with hiding themselves behind other firms used as intermediating firms, which induces an imbalance between cash flow rights and voting rights. The *ultimate* ownership must be considered in order to examine the ultimate cash flow rights and ultimate voting rights of families who own firms. This suggests that an estimation of the control divergence of the controlling shareholders requires information on the ownership and control of the firm's ultimate, rather than immediate, owners. An ultimate owner is a shareholder who has determining control rights in the firm and who is not controlled by anyone else.

There are numbers of studies that employ ultimate ownership in order to determine excess control over firms. La Porta et al. (1999) examine the issue of ultimate ownership by tracing through the chain of ownership in order to find who has the most voting rights. Their studies show that owners extend their resources through the use of pyramidal ownership structures. Claessens et al. (2000) examine the separation of control and ownership for 2,980 corporations in nine East Asian countries (including Thailand) and show that voting rights frequently exceed cash flow rights via pyramid structures and cross holding among firms in all East Asian countries. Besides, they find that there are extensive family controls in more than half of East Asian corporations, especially in Indonesia and Thailand. Lemmon and Lins (2003) use a sample of 800 firms in eight East Asian countries to study the effect of ownership structure on firm value during the region's financial crisis. Their ownership data indicate that shareholders in many East Asian firms are able to effectively control the firm even though they may have relatively low cash flow ownerships.

The third means to have power over firms significantly in excess of cash flow rights is participation in management. There is an extant strand of research empirically provide consistent evidence for this. La Porta. et al. (1999) examine how often a member of the controlling family is the CEO, the Chairman, the Honorary Chairman, or the Vice-Chairman of the firm that the family controls. Their results show that 69 percent of the time, families that control firms also participate in management both in countries with good and poor shareholder protection. Claessens et al. (2000) show that for more than two-thirds of firms with concentrated ownership, managers come from the controlling families. Bertrand, Johnson, Samphantharak, and Schoar (2008) show evidence of a unique dataset of 93 Thai business groups where, for all of the 93 Thai family owners, there is family involvement in board positions, with an average of 1.24 family members holding board positions.

2.7 FAMILY OWNERSHIP IN THAILAND

Similar to other East Asian countries, La Porta et al. (1999) provide evidence that the average percentage of common shares owned by the three largest shareholders in each of the ten largest Thai listed firms is estimated at around 47 percent. Claessens et al. (2000) find that corporations in Thailand are mainly family controlled, with the largest ten families controlling half of the corporate assets in their sample. The Brooker Group (2003), compiling information about Thai business groups, also arrived at a consistent finding that only 150 leading families control most of the companies in Thailand. Recently, Bertrand et al. (2008) constructed a unique dataset of family trees and business groups in Thailand; they showed that 93 families in their data set controlled more that 40% of all the assets in their 1996 sample of Thai firms.

Recently, Kuntisook (2008) examined the relationship between accounting conservatism and controlling shareholder characteristics using Thai listed corporation data over the period 2000-2006. The measure of ownership is based on the percentage of shares directly owned by the founding family or family members, the immediate ownership. At the 10% shares owned cut-off point, following La Porta et al. (1999), 95.5% of the total sample are controlling shareholder firms, of which 60.5% and 35% are founding family and family members, respectively. These data imply that most listed firms in the Stock Exchange of Thailand (SET) are concentrated in the hands of large shareholders, for whom the minimum ownership level is defined at 10%.

From the standpoint of acquiring excess control via multiple classes of shares, La Porta et al. (1999) and Claessens et al. (2000) find congruent evidence that shares with superior voting rights are almost never employed in the eight East Asian sample countries they studied. Like other East Asian countries, this dual class ownership structure is not allowed in Thailand.

In order to obtain excess control over firms, the controlling shareholders typically consider employing voting rights in excess of their cash flow rights. This is achieved, in part, through pyramiding schemes and cross holding ownership structures and in part through participation in firms' managerial positions. Claessens et al. (2000) showed that in order to have ultimate control at the 20% level, Thai firms use both pyramid (12.7%) and cross-holding (0.8%) structures with the number being the smallest compared with those of another nine countries in East Asia. According to the definition in La Porta et al. (1999), pyramidal structure requires publicly traded firms as intermediate firms. There is the evidence of small number of family firms employing pyramidal and cross-holding

structure in Thailand (Claessens et al., 2000). However, most Thai family firms employ complicated ownership structures through using private firms instead of publicly traded firms as the intermediate firms along the chain of holding. Though the complicated structure of ownership in most Thai firms is not exactly in accordance with the pyramidal structure definition of La Porta et al. (1999), it is usually considered as part of the same concept since it allows families to exercise control in one firm through at least one another public or private firm. Thus, to get an insight into ownership structure, considering the ultimate ownership along holding chains employing a complicated holding structure is justified.

Regarding participation in management positions by family members in order to acquire control rights over firms, Claessens et al. (2000) also studied the separation of control and management by investigating whether a member of the controlling family is the CEO, Chairman, Honorary Chairman, or Vice-Chairman of the company. They provide evidence that 67% of Thai firms owned by controlling shareholder have the controlling shareholder or member of the family involved in management positions. Recently, Bertrand et al. (2008), in a study of within family dynamics of the largest 93 business families in Thailand, provided the evidence that family size is strongly and positively associated with family involvement in the ownership and control of the family business.

Thus, given only two alternative means of achieving excess control rights over firms are available in Thailand: complicated structures (i.e., pyramidal and cross-holding structure) and involvement in managerial positions, only the first means is taken into the

account in order to get insight into how ownership structure and the imbalanced between cash flow and control rights affect earnings manipulation via real activities.

2.8 FAMILY OWNERSHIP STRUCTURE AND EANRINGS MANAGEMENT

There is substantial prior research on the relationship between ownership structure and various aspects of earnings; such as informativeness of earnings, earnings quality, accrual management, and conservatism. Two strands of extant research empirical evidence have been considered regarding two competing theories; the alignment effect and the entrenchment effect.

The notion is that the interests of family members as controlling shareholders and other shareholders are better aligned because of the large block of shares owned by family members and their long-term presence. Therefore, family firms are less likely to expropriate wealth from other shareholders through earnings manipulation. Consistent with this alignment effect notion, Warfield et al. (1995) used a sample of U.S. firms and defined managerial ownership as the percentage of shares directed or immediately owned by an individual at the 10% cut-off. They provide compelling evidence indicate that managerial ownership is positively associated with the informativeness of accounting earnings, proxy by earnings-return relation, and also find that the magnitude of discretionary accrual adjustment is significantly higher when managerial ownership is low.

Wang (2006), using data from S&P 500 companies during the period 1994-2002, examined the potential impact of founding family ownership on earnings quality. In the main test, the research follows Anderson and Reeb (2003a). Founding family ownership

in this research is defined in the aspect of participation and involvement in the board of directors or the top management by family members. Earnings quality is a proxy by three measures; abnormal accrual, earnings informativeness, and less persistence of transitory loss components in earnings. The results are consistent with the notion of the alignment effect that, on average, founding family ownership is associated with lower abnormal accruals, greater earnings informativeness, and less persistence of transitory loss components in earnings.

Congruent results are provided by Ali et al. (2007), using S&P 500 firms during the period 1998-2002 and defining family firms as immediate ownership. They examine whether reported earnings of family firms are of better quality than those of non-family firms. They assess the quality of earnings in terms of the following four aspects; the level of discretionary accruals in earnings, earnings predictability, earnings persistence, and the association of earnings with contemporaneous stock returns (earnings response coefficient). The consistent evidence suggests that, compared to non-family firms, family firms' earnings are of higher quality in all four aspects.

In contrast, a competing view is the entrenchment effect, based on the argument that concentrated ownership creates incentive for controlling shareholders to expropriate wealth from other shareholders. There is extant literature regarding this controversial argument. Francis, Schipper, and Vincent (2005) document the reduced informativeness of earnings relative to dividends in U.S. firms with dual-class stocks that enhance the divergence between cash flow rights and control rights. Fan and Wong (2002), using ultimate ownership data, assembled as of the end of 1996 by Claessens et al. (2000), examine the relationships between earnings informativeness, measured by the earnings-

return relation, and the ultimate ownership structure determining the wedge between the control rights and cash flow rights. The results are consistent with the prediction that the high ownership concentration and the large separation of ownership and control, which are common in East Asia, weaken the informativeness of reported earnings to outside investors.

Haw et al. (2004) complement and extend the literature on managerial ownership and income management by directing attention to control divergence among controlling shareholders. They use a data set relating to the ownership and control structures of the ultimate owner of a large sample of listed companies from nine East Asian and thirteen Western European countries. The study provides evidence that there is a correlation between earnings management, measured by unsigned abnormal accruals, and the detachment of the controlling owners' voting rights from their cash flow rights. This finding is consistent with the entrenchment effect, that the misalignment between the cash flow rights and control rights of controlling shareholders induces Accrual EM.

While a number of prior studies examine the relationship between ownership structure and earnings management, only one technique of earnings management, accrual management, is taken into account. As previously described engaging in manipulation of earnings may be resorted to through Accrual EM and/or Real EM. Depending on the cost that each type of manipulation activity bears, choosing alternative means of earnings manipulation by managers based on trading off the costs and benefits between Accrual EM and Real EM. Hence, in trying to understand the relationship between ownership structure and earnings management, only considering one technique of earnings manipulation at a time is likely to lead to distorted inferences. Therefore, both techniques

must be considered. To my knowledge, no prior studies have examined such an interesting relationship while taking the two techniques of manipulation mutually into account.

CHAPTER III

THEORY

3.1 AGENCY THEOTY

Agency theory considers the relationship between a principal and an agent and, in particular, the notion that decision-making authority given to the agent affects the principal's wealth. Agency problems may arise from such relationships. These include problems of monitoring incurring various monitoring costs, problems induced by differences in investment horizons and different risk preferences, and the free-rider issue.

Jensen and Meckling (1976) analyzed the theoretical motives behind agency problems and also developed a theory of the ownership structure of a firm, proposing that conflicts of interest between managers and other parties in a firm arise because managers effectively control a firm's assets but generally do not have a significant equity stake in their firms. Their analysis is based on the perspective that an organization is " a legal fiction which serves as a nexus for contracting relationships and which is also characterized by the existence of divisible residual claims on the assets and cash-flow of the organization, which can generally be sold without permission of the other contracting individual" (Jensen and Meckling, 1976, p. 311).

In particular, they focus on the agency relationship between a principal (the external owner of the firm) and an agent (the owner-manager). As the owner-manager's fraction of total equity falls, through the sale equity to outside investors, the utility maximizing agent has the incentive to appropriate a larger amount of the

corporation's resources in the form of perquisites and to exert a less-than-full effort to create value for shareholders.

In order to protect his or her own wealth, the principal is able to limit the effects of this divergence of interests by incurring a monitoring cost in order to curb the agent's self-serving behavior. Such monitoring expenditures are likely to include those correlated to payments to external parties such as auditors to scrutinize the company's accounts, and the cost of independent directors on the board and so forth. An alternative is for the entrepreneur to credibly bond the agent's behavior towards a more value-maximizing one, thereby incurring bonding cost (Jensen and Meckling, 1976). However, Jensen and Meckling (1976) conclude that, generally, there will always be a residual loss. All of these agency costs: monitoring, bonding, and residual loss are borne in their model by the sale of equity to external investors by the owner-manager. Marginal agency cost and marginal benefit of monitoring and bonding should be finally equal in equilibrium.

A further problem is associated with the difference in investment horizon between managers and shareholders. Firms have an indefinite life. Thus shareholders are concerned with a potentially infinite stream of cash flows; whereas a manager's concern is usually limited to the cash flows received during the period of employment. Consequently, managers tend to adopt a short-term perspective on investment leading to a preference for projects with quicker cash flow returns that are not necessarily value-maximizing.

Differences in risk preferences between principals and agents are an additional source of conflict. As suggested in the theory of portfolios, shareholders generally

eliminate unsystematic risk via portfolio diversification. Thus shareholders are concerned with the market risk associated with market wide fluctuations of stock returns rather than company-specific risk. In contrast, managers' sources of wealth are typically not as well diversified as shareholders' portfolios but are tied in their companies' fortunes. This is because their future employment prospects depend on the firms' survival, especially if they invest in a large amount of human-specific capital.

A further problem inducing agency costs is associated with the free-rider issue, experienced where there is an atomistic dispersion of capital common to most large listed firms. When there is a large dispersion of capital, individual external shareholders typically have no incentive to engage in managerial monitoring, conveying an incentive to free ride on other actions. Thus, though it may in the interest of the collective group of external shareholders to engage in actions aimed at disciplining management, there is no single rational individual shareholder undertaking such actions. In the context of diffused shareholders and an absence of other mechanisms, additional discretions are provided for the agent to run the corporation in his own interests.

To summarize, in a widely held firm, the agency problem arise from the separation of ownership and management (Type I agency problem). The separation of corporate managers from shareholders may lead to managers not acting in the best interests of the shareholders. On the other hand, when ownership is concentrated to a level at which an owner obtains effective control of the firm, as is in the case in East Asian countries, the nature of the agency problem shifts away from a Type I agency problem: manager-shareholder conflicts, to a Type II agency problem: conflicts between controlling shareholders (who are also managers) and minority shareholders. Controlling

shareholders may seek private benefits at the expense of minority shareholders. Below is the discussion of how these types of agency problems differ across family and non-family firms.

3.2 TYPE I AGENCY PROBLEM: SEPARATION OF OWNERSHIP AND MANAGEMENT

As previously discussed, various problems arise due to the conflicts between managers and shareholders, especially the monitoring problem and the free rider issue. However, there are reasons to believe that several characteristics of family firms reduce the tendency for managers to not act in the best interests of shareholders.

First, with regard to the free rider issue, unlike diffused shareholders, families tend to hold undiversified equity position in their firms; thus they are likely to have strong incentives to monitor managers (Demsetz and Lehn, 1985). Anderson and Reeb (2003a) indicate that since the wealth of families is closely tied to firm value, families have strong incentives to monitor employees. Second, as families attain better knowledge about their firms' activities this enables them to conduct superior monitoring of managers (Anderson and Reeb, 2003a). Third, compared with other shareholders, families tend to have much longer investment horizons since they are concerned with a potentially infinite stream of cash flows. This helps mitigate myopic investment decisions by managers (James, 1999). To summarize, compared to non-family firms, family firms are less likely to suffer severe hidden-action and hidden-information agency problems owing to the separation of ownership and management.

On the other hand, there are at least two factors associated with mitigating the difference between family and non-family firms from the monitoring costs standpoint. Basing managers' compensation on observable performance measures is the key factor enhancing the alignment between the interests of managers and stockholders (Lambert, 2001). In addition, concern over reputation in the managerial labor market also contributes towards managers acting in the best interest of the shareholders. Besides, in the case of fraud, shareholders can bring lawsuits against managers.

3.3 TYPE II AGENCY PROBLEM: CONFLICT BETWEEN CONTROLLING AND NON-CONTROLLING SHAREHOLDERS

In family firms, the family, as controlling owner typically has nearly full control over managers through their domination of the board of directors' membership and the family frequently possesses control power in excess of their cash flow right. This excess control gives the family power to seek private benefits at the expense of other shareholders by engaging in related-party transactions (Anderson and Reeb, 2003a) and through managerial entrenchment (Shleifer and Vishny, 1997).

La Porta et al. (1999) suggest that concentrated ownership by family is likely to endanger firm value, especially when there is involvement in the management team by family members. The typical practice of hiring family members and putting them into managerial positions as top executives or company directors not only affects the decisions of managers but also shields them from being reasonably monitored and intimately controlled by corporate governance mechanisms. The power to control corporations provides the family members with the ability to use corporate assets for their own interests while minority shareholders bear the costs of doing so. Intuitively, such private

benefit seeking includes: consuming perquisites, providing jobs to family members and paying them excessive salaries, giving preferences to companies they privately own, and setting dividend policy according to their investment and consumption plans. In this situation, the agency costs generated by this participation in managerial positions by family members shifts the conflict of interest from that between the managers and shareholders to that between controlling owners and minority shareholders.

There are two competing views about the differing agency problems in family and non-family firms: the alignment effect and the entrenchment effect.

3.4 ALIGNMENT EFFECT

The alignment effect implies that concentrated ownership creates greater monitoring by controlling owners (Shleifer and Vishny, 1997), suggesting that controlling families might monitor firms more effectively. As discussed earlier, compared to non-family firms, family firms are likely to have less severe Type I agency problems. While non-family firms are more likely to compensate their managers based on observable earnings-based performance measures, family firms, being more effective monitors of management, can reward their managers based on information about managers' efforts obtained through direct monitoring. Moreover, when family members owning large amounts of shares are also involved in managerial position in firms, the problem of separation of ownership and management is limited. Consequently, compared to non-family firms, family firms are less likely to compensate their managers based on observable earnings-based performance measures. Chen (2005) provides evidence consistent with the above argument that family firms are significantly less likely to pay their CEOs earnings-based compensation, both in terms of amount as well as in terms of

percentage of total compensation. Regarding the effect on earnings manipulation, since management compensation in family firms is less likely to be tied to earnings, family firms' earnings are less likely to be manipulated (Healy and Palepu, 2001).

Besides, there is the notion that family firms employ superior knowledge about their firms' activities and business to enable them to provide superior monitoring of managers; thus, managers' opportunistic behavior is less likely to affect the earnings of family firms. Intuitively, for example, superior knowledge about business conditions and relationships with suppliers and customers will enable family members to more effectively detect if managers are offering more lenient credit terms to temporarily boost sales volumes or unreasonable cuts have been made to certain discretionary expenditures.

Other reasons discouraging family firms from opportunistically managing earnings are long-term orientation and reputation protection. Earnings management activities are more likely to be short-term oriented and perhaps even detrimental to long-term performance but family members are long-term oriented; they have long-term horizons of investment, seek a sustainable presence in the firm, and intend to preserve the family name. This suggests that families are more likely to forgo short-term benefits from managing earnings because of the incentives to pass on their business to future generations and to protect the family's reputation. In general, the long-term business horizon, a higher stake in the firm, and incentives to preserve the family's reputation constrain family firms from opportunistically managing accounting earnings for private gains.

Overall, the alignment effect is based on the notion that the interests of families and other shareholders are better aligned because of the large blocks of shares owned by family members, their superior knowledge, their long-term orientation, and their reputation concern. Hence, family firms have incentives to report earnings in good faith and thus earnings are less likely to be manipulated.

3.5 ENTRENCHMENT EFFECT

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). In turn, the entrenchment effect implies that family members, as controlling shareholders, may extract private benefits from the firm at the cost of minority shareholders (Shleifer and Vishny, 1997). Consistent with the traditional view that family firms are less efficient, the entrenchment effect motivates firms to opportunistically manage earnings.

Family owners typically have superior knowledge about firms' business and activities. Thus, a family ownership structure is often associated with a tendency to earnings manipulation. Such potential greater information asymmetry between families and other shareholders could cause the entrenchment effect. Francis, Lafond, and Schipper (2005) provide supporting evidence that information asymmetry lowers the transparency of accounting disclosures. Intuitively, given the high level of influence family owners have on their firms, if they decide to engage in earnings manipulation, they can more easily do so. This manipulation may be resorted to, for example, to hide the adverse effect of related party transactions or to facilitate family members' entrenchment

in management positions. Thus, involvement of family members in managerial positions could have a negative impact on the firms.

The explanation for the entrenchment motivation of family firms is typically given as the excess control over ownership. As discussed earlier, the ownership arrangements of family firms are further complicated through pyramidal and cross-holding structures. These complicated ownership arrangements allow controlling owners to hold low equity investments while maintaining tight control of the firm, creating a separation in control (voting rights) and ownership (cash flow rights). One consequence of the divergence between voting and cash flow rights is that the controlling families becomes entrenched with a high level of control, while a low-equity ownership level provides only a low degree of alignment between the family members and other minority shareholders. A family owner with excess control in this situation could extract wealth from the firm, receive the entire benefit, but only bear a fraction of the cost.

CHAPTER IV

HYPOTHESES DEVELOPMENT

4.1 FAMILY OWNERSHIP STRUCTURE AND REAL EM

There is good evidence consistent with the alignment effect that family ownership creates incentives for family members to report earnings in good faith and earnings are less likely to be opportunistically manipulated. Thus, managerial ownership is relatively likely to attenuate earnings management (Warfield et al., 1995), family ownership is associated with lower abnormal accrual (Wang, 2006), and family firms' earnings are higher quality including the level of discretionary accruals in earnings (Ali et al., 2007). In contrast, there is extant literature providing evidence consistent with the entrenchment effect predicting that family ownership creates greater incentives to manage earnings for private benefit (Fan and Wong, 2002; Haw et al., 2004).

However, these extant studies examine the effect of ownership structure on earnings manipulation by focusing only on Accrual EM. Real EM is associated with greater cost than Accrual EM, especially in the long run. Regarding the notion that the deviating from optimal business operations jeopardizes a firm's future competitive advantage, managers' decisions to employ alternative earning manipulation techniques depend on trading off costs against benefits from each technique.

Overall, the existing theories provide competing predictions about the relationship between family ownership and earnings manipulation. Besides, the extant studies are inconclusive as well. The directional relation between family ownership

structure and Real EM becomes vague. The first hypothesis is non-directional and stated as follows.

H_1: Family ownership structure is associated with a level of Real EM.

4.2 CASH FLOW-CONTROL RIGHTS DIVERGENCE AND THE RELATIONSHIP BETWEEN FAMILY OWNERSHIP STRUCTURE AND REAL EM

As the controlling shareholders of firms, families obtain both cash flow rights and control rights. Since dual class shares are not allowed in Thailand, one share-one vote is typically acquired when families *directly* own their shares. In such cases, there is no difference between identifying the immediate or ultimate ownership. However, sometime families *indirectly* own their shares by concealing their shareholdings through complicated ownership structures. This indirect ownership induces a discrepancy between cash flow rights and control rights. The divergence of cash flow and control rights represents the extent of the difference of the shareholders' cash flow rights from control rights. The more divergence, the more the cash flow-control structure of shareholders is far from one share-one vote. The difference between cash flow rights and control rights occurs only in the case that control rights exceed cash flow rights by constructing complicated ownership structures to acquire more control rights with low cash flow investment. Thus, ultimate ownership is required to be determined in order to define the ownership and control structures. Since one share allows *at least* one vote, there is no case that cash flow rights exceed control rights.

Distinctly, there are differences in incentives to manage reported earnings among family firms with several degrees of cash flow-control rights divergence. In the case of

low cash flow-control divergence, families with higher ownership stakes have control rights which are not stronger than cash flow rights in the firm. In the case of low cash flow-control divergence, cash flow rights are relatively high compared to control rights, implying that it will cost more to divert the firm's cash flow for their private gains. Thus, family ownership concentration in cases of low cash flow-control divergence produces an incentive to report earnings in a good faith and manipulation of reported earnings is less likely. In contrast, in the case of high cash flow-control divergence, control rights are relatively high compared to cash flow rights. Such a cash flow-control structure allows family owners to commit only low equity investments while maintaining tight control of firms. This high divergence leads family owners to become entrenched with high levels of control, whereas, the low equity ownership level provides only a low degree of alignment between the family owners and minority shareholder, representing a severe Type II agency problem. Regarding the possibility of inducing the entrenched motivation and earnings manipulation based on the high degree of divergence, family firms are less likely to report earnings in good faith and thus earnings are more likely to be manipulated.

There is extant literature providing evidence consistent with the entrenchment effect. Fan and Wong (2002) document results consistent with their prediction that an increase in the degree of divergence between the controlling owners' cash flow rights and control rights decreases the informativeness of the firm's earnings. Thus, the controlling shareholders have both the incentive and the opportunity to manipulate accounting earnings for private rents. Haw et al. (2004) provide congruent evidence that accrual management activities are associated with the wedge between control rights and cash flow rights of the controlling owners. However, these extant studies examine the effect of ownership structure on earnings manipulation by focusing only on Accrual EM.

As previously described, Real EM imposes greater costs to the firms especially in terms of future competitive disadvantage. Managers possibly expect to bear greater cost as well when they engage in Accrual EM. There are at least two main possible reasons explaining why managers could turn from Accrual EM to Real EM; regulation and litigation risk concern and limitation of available accrual inducing risk from relying only on accrual manipulation. Several studies confirm these two explanations (Ewert and Wagenhofer, 2005; Cohen et al., 2008; Zang, 2007; Cohen and Zarowin, 2010; Huang et al., 2006; and Barton and Simko, 2002). But all of these extant studies do not examine whether firms engage in Real EM in the context of family ownership structure.

Different from non-family firms, trading off costs against benefits when choosing between two forms of earnings manipulation based on their short-term oriented interests, family firms are more long-term oriented due to their long investment horizon. However, one share-one vote is not always the only case, thus, the degree of cash flow-control rights divergence is further examined in order to predict whether family firms engage in Real EM.

For family firms associated with a high degree of divergence, their control rights are far beyond cash flow rights. While the low degree of equity ownership involvement provides only a low degree of alignment between family owners' interests and that of others, the high level of control rights than excess cash flow rights induces an entrenched motivation for family owners to expropriate wealth from minority shareholders. With a high degree of divergence, family shareholders have relatively low committed cash flow compared to their control rights. The cost of Real EM is not expected to be as great as for a high equity investment. The family owners, as controlling shareholders, have incentives

and opportunities to manipulate earnings (Fan and Wong, 2002). Thus, the prediction is consistent with the entrenchment effect as follows.

H_2: The degree of cash flow-control rights divergence in family firms is positively associated with a level of Real EM.

CHAPTER V

RESEARCH DESIGN

5.1 SAMPLE

The initial sample used in this study consists of all December fiscal-year-end Thai listed firms during the period 2008-2010 from the *SET Market Analysis and Reporting Tool (SETSMART)*, excluding firms in the financial and insurance industry sector. The accounting data are obtained from *Datastream* and *Bloomberg* databases. The data for immediate ownership, members of the board of directors, and the number of shares outstanding of the listed firms are obtained from the *SET Market Analysis and Reporting Tool (SETSMART)*. To trace the shares owned through holding chains where some of the holders firms are non-listed firms, the Business On Line (BOL) database is used to provide ownership information on non-listed companies but is limited only to firms with revenues higher than 200 million THB per year. Thus, for firms with revenues lower than 200 million THB per year, the shareholder list (Bhor.Aor.Jor.5) is manually collected from the Department of Business Development.

5.2 MEASURES AND DEFINITIONS OF OWNERSHIP VARIABLES

The definition of *"ownership"* relies on ultimate control rights, the numbers of common shares owned. The definition of *"control"* relies on voting rights. As noted, multiple classes of shares are not allowed in Thailand, thus, alternative means of deviation from one-share-one-vote occur through the complicated ownership arrangements such as pyramidal schemes and cross holdings. Moreover, achieving control of firms can be employed by shareholder involvement in the key management positions.

La Porta et al. (1999) define ownership based on ultimate control rights rather than cash flow rights. They examine whether firms have shareholders with substantial control rights, either directly or through the chain of holdings. In their studies, an *"ultimate*" owner is defined as a shareholder who has a determining *control right* in the firm and who is not controlled by anyone else. Since La Porta et al. (1999) aim to examine how firms are owned, then they have to focus on control power regardless of the cash flow rights. Consistent with this extant research, this research examines the effect of family ownership on earnings manipulation. How firms are aligned or entrenched is based on their control rights as well. Thus, the definitions of ultimate ownership and ultimate control are as follows; *ultimate ownership* is defined as a final *control right* in the firm that is not owned by anyone else. *Ultimate control* is defined as a final *control right* in the firm that is not controlled by anyone else.

Adapting from La Porta et al. (1999), at first, firms are divided into those that are *widely held* and those with *ultimate owners* based on the *ultimate control right* definition. To describe control of firms, at first, shareholders are identified who own more than 10 percent of the common shares. The cutoff of 10 percent is used, from La Porta et al. (1999), because (1) it provides a significant threshold of votes; and (2) most countries mandate disclosure of 10 percent, as usually even lower, ownership stakes. In addition, in the regulations of the Stock Exchange of Thailand (SET), for institutional ownership, a 10 percent cutoff is mandated for disclosure. Then, all immediate shareholders are traced who own more than 10 percent along the holding chain (if any) until the ultimate owner, who is not owned by anyone else, is found. The product or sum of the product of percentage of shares owned along the holding chain is calculated and used as the *ultimate cash flow rights*. Five types of ultimate owners are allowed: (1) a family or an individual

(FAM), (2) the State (*STATE*), (3) a foreign company (*FR*), (4) a widely held corporation (*WHC*), and (5) a non-controlling shareholder (*NON-CS*), in the case where there is no ultimate owner who owns more that 10 percent of control rights. To categorize as widely held firms or any type of five ultimate owners, 10 percent of *ultimate control rights* through both direct and indirect control rights is used as rule of thumb. The idea behind using 10 percent of the ultimate control rights is that this is usually enough to have the effective control of a firm.

Since the family group, as opposed to individual family members, is used as the unit of analysis, a family's or an individual's cash flow rights and control rights are calculated by summing a given family member's direct and indirect cash flow rights and control rights over a given firm. Direct cash flow rights and control rights are simply the percentage of shares that a given family member or other type of holder owns. When there is a complicated holding arrangement like a pyramid, the sum of the product of shares held by a given holder along all chains is calculated as the *ultimate cash flow rights (%CF)*, the sum of the weakest links or the least percentage of shares owned in all chains is calculated as the *ultimate control rights (%CONTROL).*

With regarding to the holding structure, firms directly and ultimately held by any type of holders are defined as direct *(D)* structure. Since most Thai firms are indirectly owned via both publicly traded and private firms, La Porta et al. (1999)'s pyramid definition is extended as follows: a firm's ownership structure is defined as *pyramid (PY)* (on the 10 percent definition) if (1) it has an ultimate owner, and (2) there is at least one publicly traded or private firm between it and the ultimate owner in the chain of 10 percent voting rights. That is, pyramid structure requires intermediate firms and such

intermediate firms can be either publicly traded or private firms (see Figure 1, Appendix A). On the other hand, a firm's ownership structure is defined as *cross holding (CROSS)* (on the 10 percent definition) if the firm both has a controlling shareholder and owns shares in its controlling shareholder or in a firm that belongs to its chain of control (see Figure 3, Appendix A). In the case where the ultimate controller has several control rights chains through which to control the votes in a company, those pyramidal and cross holding chains are traced individually and then the control rights are summed up to yield the ultimate control rights (see Figure 2, Appendix A).

Following Fan and Wong (2002) and Haw et al. (2004), the extent of the divergence of the controlling owner's control rights from cash flow rights *(DIV)* is defined as 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate voting rights *(%CONTROL).* Thus, the closer the value of *DIV* is to 1, the more the ultimate owner's control rights are detached from the ultimate cash flow rights.

5.3 MEASURES OF REAL EM

Prior studies are used as a guide to developing proxies for real earnings management activities. As in Roychowdhury (2006) and Cohen and Zarowin (2010), three metrics are considered to measure the level of real activities manipulation: the abnormal levels of cash flow from operations *(CFO),* production costs *(PROD)* and discretionary expenses *(SG&A).* Numerous subsequent studies, such as Gunny (2005), Zang (2006), Cohen et al. (2008), Chen (2010), Cohen and Zarowin (2010), and Taylor and Xu (2010), provide evidence of the construct validity of these proxies. Focus is on the following three manipulation methods.

1. Deviating from the optimal timing of sale through changing price discounts or credit terms policy

To manage earnings upward, offering price or time-limited price discounts and more lenient credit terms will temporarily increase sales volumes, but these are likely to disappear once the firm reverts to old prices. The additional sales will boost current period earnings, assuming the margins are positive. However, both price discounts and more lenient credit terms will result in lower cash flows in the current period. In contrast, to manage earnings downward, cancelling the normal price discounts or raising sale price or shortening credit terms will temporarily lower sales volumes. This reduction in sales volumes will decrease current period earnings. Following Dechow, Kothari, and Watts (1998), and Roychowdhury (2006), the model to estimate the normal levels of CFO as a function of current sales and changes in sales is given below.

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

Abnormal *CFO (R_CFO)* is actual *CFO* minus the normal level of *CFO* calculated using the estimated coefficient from Equation (1). The negative (positive) value of the residual indicates upward (downward) manipulation, or vice versa.

2. *Deviating from normal level of production*

Production can be increased more than necessary in order to increase earnings. When managers produce more units of goods, the fixed overhead costs can be spread over a large number of produced units, thus, inducing a lower fixed cost of units. As long as the reduction in fixed cost per unit is not offset by any increase in marginal cost per unit,

total cost per unit declines. This decreases reported cost of goods sold (COGS) and the firm can report higher operating margins. However, the firm will still incur other production and holding costs that will lead to higher annual production costs relative to sales, and lower cash flows from operations given sales levels. Contrarily, underproduction, the production of fewer goods than the market demands, will be employed to manage earnings downward. A higher level of fixed overhead costs will spread over a smaller numbers of units of produced goods, inducing a higher total cost per unit. Then, firms can report lower operating margins due to the increased reported costs of goods sold. However, other production costs and holding costs will be lower due to the lower level of production and finally higher cash flow from operations. Following Dechow et al. (1998) and Roychowdhury (2006), the normal levels of COGS is estimated as a linear function of contemporaneous sales.

$$\frac{COGS_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

Similarly, the model for normal inventory growth is estimated as a linear function of the contemporaneous and lagged change in sales.

$$\frac{\Delta INV_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

Using (2) and (3), the model for normal production costs is as follows.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (4)$$

In the above equations, *PROD* represents the production costs in period t, defined as the sum of *COGS* and the change in inventories. Abnormal production costs

(R_PROD) is computed as the difference between the actual values and the normal levels estimated from Equation (4). In order to facilitate the interpretation, the residual from production activity is multiplied with minus 1, then the negative (positive) value indicates upward (downward) manipulation through overproduction (underproduction) activity, or vice versa.

3. *Deviating from optimal level of SG&A expenses by cutting off or overspending on expenses that include advertising expenses, research and development, and SG&A expenses*

To manage earnings upward, such expenses will be reduced. It could also lead to higher current period cash flows (at the risk of lower future cash flows) if the firm generally paid for such expenses in cash. In contrast, to manage earnings downward, firms can spend more than necessary on such expenses. Roychowdhury (2006) and Cohen and Zarowin (2010) suggest that the estimation of discretionary expenses as a linear function of contemporaneous sales induces a mechanical problem. If firms manage sales upward to increase reported earnings in a certain year, then unusually low residuals may result from such an estimation. Thus, discretionary expenses are estimated as a function of lagged sales to derive the normal level of discretionary expenses as follows.

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \qquad (5)$$

SG&A represents the discretionary expenditures in period t, defined as the sum of advertising expenses, R&D expenses and SG&A. The accounting data acquired from Datastream reveals that all advertising and R&D expenses are already included in SG&A.

Abnormal discretionary expenses *(R_SGA)* is computed as the difference between the actual values and the normal levels estimated from Equation (5). The negative (positive) value of residual indicates upward (downward) manipulation through cutting off (overspending on) SG&A expenses, or vice versa.

Then, these three variables are used as proxies for real earnings management. Given sales levels, firms that manage earnings upwards are likely to have one or all of these characteristics: unusually low cash flow from operations, and/or unusually low discretionary expenses, and/or unusually high production costs. On the other hand, in order to manage earnings downward, firms are likely to have one or all of these three characteristics: unusually high cash flow from operations induced by shortening credit terms or raising sales price, and/or unusually low production costs induced by underproduction, and/or unusually high discretionary expenses induced by overspending on SG&A expenses.

The first set of measures is the individual activity measure. An examination corresponding to the three individual real earnings management proxies *(R_CFO, R_PROD and R_SG&A)* is provided separately as well.

The second set of measures is the aggregated measure. Following Cohen and Zarowin (2010), in order to capture the total effects of real earnings management, the three individual measures are combined to compute three sets of comprehensive metrics of real earnings management activities. The first set of measures is the aggregated measure, *RM1*, adapted from Zang (2006) and Cohen and Zarowin (2010), as noted earlier, *R_PROD* is already multiplied by minus one. A negative value of the residual

indicates underproduction and higher cash flow from operations. Meanwhile, a negative value of *R_SGA* indicates higher cash flow from cutting off SG&A expense activity. These two proxies are then combined. Abnormal production costs (*R_PROD)* and abnormal CFO *(R_CFO)* are not combined because in Roychowdhury (2006), the same activities that lead to abnormally high production costs also lead to abnormally low CFO; thus, adding these two amounts leads to double counting. The higher the negative (positive) value of *RM1*, the more likely the firm is engaged in upward (downward) real earnings management activities. The second measure, *RM2* is again adapted from Zang (2006) and Cohen and Zarowin (2010). Abnormal cash flows from operations *(R_CFO)* and abnormal discretionary expenses *(R_SG&A)* are aggregated into one measure. The higher the negative (positive) value of *RM2*, the more likely the firm is engaged in upward (downward) real earnings management activities.

5.4 HYPOTHESES TESTING MODEL

To find whether the evidence is consistent with the hypotheses developed, the following regression is used to test the first hypothesis and the second hypothesis, respectively.

$$RM_{i,t} = \lambda_0 + \lambda_1 FAM_{i.t} + \sum_k \lambda_{2,k} CostRM_{k,i,t} + \sum_t \lambda_{3,t} CostAM_{t,i,t} + \sum_m \lambda_{4,m} Incentives_{m,i,t} + \sum_n \lambda_{5,n} Control_{n,i,t} + \upsilon_{i,t} \quad (6)$$

$$RM_{i,t} = \lambda_0 + \lambda_1 FAM_{i.t} + \lambda_2 DIV_{i,t} + \lambda_3 FAM_{i,t} * DIV_{i,t} + \sum_k \lambda_{4,k} CostRM_{k,i,t} + \sum_t \lambda_{5,l} CostAM_{l,i,t} + \sum_m \lambda_{6,m} Incentives_{m,i,t} + \sum_n \lambda_{7,n} Control_{n,i,t} + \upsilon_{i,t} \quad (7)$$

(Variable definitions are presented in Appendix B)

The dependent variable *RM* is a measure of real earnings management activities estimated from those three activities of earnings manipulation from the estimation models. At first, to facilitate understanding and interpretation, the absolute value of the three individual earnings management proxies *(|R_CFO|,| R_PROD| and |R_SGA|),* and the set of aggregated measures *(|RM1| and |RM2|)* are examined The higher these absolute amounts, the more likely that the firm is engaging in Real EM through each activity irrespective of the manipulation's direction. Second, the three individual earnings management proxies *(R_CFO, R_PROD and R_SGA)* and the set of aggregated measures *(RM1 and RM2),* are separately examined. Regarding the sign value of residuals, the higher negative (positive) the sign amount, the more likely it is that the firm is engaging in upward (downward) Real EM through each activity. In the sensitivity test, the standardized measures *(STD_CFO, STD_PROD and STD_SGA)* are separately examined.

The independent variable *FAM* is the variable of interest that is the proxy for family ownership. To test the first Hypothesis, the definition of ultimate ownership on control rights is used. Thus, a binary variable *FAM* is code one if the *ultimate control rights* of the family are equal or greater than 10%, and code zero otherwise.

To test the second Hypothesis, following Fan and Wong (2002) and Haw et al. (2004), the variable *FAM* is retained and interacted with the extent of divergence of the controlling owner's control rights from cash flow rights *(DIV).* The variable *DIV* is defined as 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL).* Thus, the closer the value of DIV is to 1, the more the ultimate owner's control rights are detached from the ultimate cash flow rights.

Zang (2012) examines the assumption of the simultaneity and sequentiality of Real EM and Accrual EM using the Hausman test and finds evidence that the Hausman test rejects simultaneity. Thus, the recursive simultaneous equation system, which captures the sequentiality of Real EM and Accrual EM, is used. Following Zang (2012), Real EM is predetermined by the costs of Real EM and Accrual EM, as well as incentives.

Cost RM is a variable proxy for the cost determinants of the three real manipulation activities; sales manipulation, over/underproduction, and discretionary expenses. These three manipulation activities are associated with both general cost imposing on the firm's competitive advantage and specific costs subjected to each specific activity.

Following Zang (2012) and Roychowdhury (2006), the first type of cost associated with Real EM imposing on firms' competitive advantage is financial health. The second type of cost recognizes the influence of institutional ownership. The third type is the availability of a firm's resources to engage in Real EM, in particular, the stock of inventories and receivables. These three types of cost associated with Real EM are measured as follows.

Financial health

For a firm closes to bankruptcy, the marginal cost of deviating from optimal business strategy is likely to be high. In this case, managers might perceive Real EM as quite costly since their primary goal is the survival of the firm. Graham et al. (2006) show survey evidence supporting this view where CFOs admit that if the company is in a

"negative tailspin", managers' efforts to survive financial distress dominate reporting concerns. Following previous research, a modified version of Altman's Z-score (Altman, 1968) is used to proxy for a firm's *financial health*.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

This proxy for financial health is a continuous variable. A Higher value of *ZSCORE* indicates a healthier financial condition of the firm and, thus, lower cost associated with Real EM. A positive relation with the level of Real EM is expected. Following Altman (2000), the cut-off point at 2.675 is used for the interpretation.

Influence of institutional ownership

There are prior extant studies (Bushee, 1998, and Rajgopal et al., 1999) suggesting the monitoring roles of institutional investors since they closely monitor a firm's operations, and besides, sophisticated institutional investors are better able to analyze the future potential outcomes of current operating decisions. Thus, the presence of institutional investors restricts the level of Real EM. A negative relation between the level of Real EM and the level of institutional ownership is expected.

Resource Available

The cost determinant associated with acceleration of the timing of sales through increased price discounts or more lenient credit is subject to the availability of resources belonging to firms to undertake such activities. For example, at extremely low levels of inventories and receivables, managers have limited resources available to manage

earnings through either accruals or real activities. Roychowdhury (2004) investigates the possibility that in such cases, managers are more aggressive in manipulating specific real activities that do not affect working capital accruals; for example, discounts on cash sales and reduction of cash discretionary expenditures. Thus, the stock of current assets (in particular the stock of inventories and receivables) should be taken into account as the cost determinant to engage in such manipulation activity. Following Roychowdhury (2006), *INV_AR* is used as a proxy for resources available, calculated by using the sum of industry-year adjusted inventories and receivables at the beginning of the year as a percentage of total assets, and expressed as deviation from the corresponding industry-year mean. A higher level of inventories and receivables increases the ability to manipulate sales and production levels, thus, a positive relationship between resources availability and Real EM is expected.

***Cost AM*:** Unlike Real EM, Accrual EM does not have a direct cash flow effect. Instead, managers are constrained by the flexibility within GAAP or firms' ability to manage earnings using accruals and the scrutiny from outsiders. All cost determinants associated with the flexibility within GAAP and the scrutiny from outsiders are measured as follows.

Scrutiny from outsiders

The costs of using Accrual EM include the scrutiny provided by the capital markets, the potential penalty of detection, and the difficulty of achieving a given earnings target. Graham et al. (2005) find that managers prefer Real EM to Accrual EM, because Real EM is less likely to be scrutinized by auditors and regulators, and thus is more likely not to be detected. Following Gunny (2005), Zang (2006), and Cohen and

Zarowin (2010), scrutiny is assumed to increase with the presence of a Big 4 auditor, and with auditor's experience (tenure) at the client. Thus *BIG4*, a dummy variable for whether firm has a Big 4 auditor, and *AUDIT_TENURE*, the natural logarithm of the number years the auditor has audited the firm are used. The relationships between Real EM and *BIG4*, and Real EM and *AUDIT_TENURE* are expected to be positive. However, an alternative theory on the presence of a Big 4 auditor should also be taken into account. A Big 4 auditor is possibly selected in order to signal a higher quality of a firm's financial reports, implying that a firm with good quality financial reports is less likely to engage in both Accrual EM and Real EM. Thus, the relationship between Real EM and *BIG4*, and Real EM and *AUDIT_TENURE* can possibly be expected as negative as well.

Ability to manage accruals

Net operating assets *(NOA)* is the proxy for this measure. Since the balance sheet accumulates the effects of prior accounting choices, the level of the firms' net operating assets position *(NOA)* reflects earnings management in the former period to some extent: higher current *NOA* indicates greater past "upward" accrual earnings management activities. Firms with higher *NOA* substitute away from upward accrual management, since the higher level of *NOA* implies the greater constraint of accrual management. A positive association is expected. On the other hand, lower or negative current *NOA* reflects greater "downward" Accrual EM in the past. Manipulation further through Accrual EM is relatively costly to firms. Firms with negative NOA are more likely to employ downward Real EM to substitute for downward Accrual EM. Thus, a negative relationship between level of Real EM and *NOA* is also expected. Following Barton and Simko (2002), Zang (2006), and Cohen and Zarowin (2010), *NOA* is calculated as the

sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

Incentives: There are two certain sources of incentives related to both Accrual EM and Real EM; the capital market incentive, and role of analysts' forecasts as an incentive to meet or beat their forecasts.

The capital market incentive

Numerous prior studies provide evidence of incentives to manage earnings, specifically: firm in years with earnings right at or just above benchmarks are likely to manage earnings to meet these important benchmarks. Such benchmarks include analysts' forecasts, zero earnings or avoiding loss, and earnings decrease avoidance. Dechow and Skinner (2000), Fields et al. (2001), and Healy and Wahlen (1999) suggest that capital market incentives are the most significant ones in affecting earnings management activities. In order to capture capital market incentives, frequency of meeting/beating analysts' forecasts and equity issuance are considered. Bartov et al. (2002) provide evidence that firms that meet or beat analysts' earnings forecasts enjoy higher returns and this premium return is higher for firms that constantly meet/beat analysts' earnings forecasts, i.e., habitual beaters. In addition, managers have an incentive to boost stock price when they are issuing equity, based on their perception that investors cannot "see through" earning management at the time of equity issuance. Burgstahler and Dichev (1997) provide evidence that firms manage reported earnings to avoid earnings decreases and losses. However, due to the few firms in the Stock Exchange of Thailand followed by analysts or found issuing new equity, these two incentive proxies are extremely restricted in number in the sample. Thus, manipulation to avoid loss is used.

Adapting from Roychowdhury (2006), in order to construct the incentive variables, Figure 4 groups 1,285 firm-years into 30 intervals based on net income scaled by total assets at the beginning of the year. The histogram for scaled earnings was constructed with widths of 0.0505 for the range -0.505 to +1.01. The 11^{th} interval presents scaled earnings for the range zero to +0.0505. The pattern shown in the histogram in Figure 4 is rather similar to that reported by earlier studies, with the unusual upward shift in the frequency of firm-years from the left of zero to the right. It is likely that firm-years in the intervals just to the right of zero (the 11^{th} interval) are employing earnings management to report income slightly above zero. This histogram is used to construct the independent variable which is substituted for incentive to avoid loss: $AVOIDLOSS_t$ (a dummy variable equal to 1 if the net income scaled by lagged assets is in the 11^{th} interval, just to the right of zero, or 0 to +0.0505 in the earnings interval histogram, Figure 4, otherwise it is zero); and the independent variable $NI\_AVOIDLOSS_t$ (the interaction between the $AVOIDLOSS_t$ dummy variable and net income scaled by lagged assets).

Control: Based on the evidence in the earnings management literature (e.g., Healy and Wahlen, 1999; Fields et al., 2001; Zang, 2006; Cohen and Zarowin, 2010), the following variables are included to control for variation in profitability performance, size, growth, capital structure, and real economic phenomena; profitability performance is captured by the return on assets *(ROA)*, size is captured by the industry-year adjusted log value of total assets *(ASSET)*, growth is captured by the market-to-book ratio *(MTB)*, capital structure is captured by the amount of debt in the firm's capital *(LEVERAGE)*, and economic phenomena are measured by *YEAR*, time-variable as a proxy for variation in real economic phenomena. The *YEAR* variable is included to control for the effect of

economic activity on earnings management, since what might be classified as opportunistic earnings management may, in fact, be a consequence of changing economic conditions. Abnormal CFO, abnormal production cost and abnormal SG&A expenses may also reflect firms' responses to and representations of changes in economic conditions

CHAPTER VI

RESULTS

6.1 DESCRIPTIVE STATISTICS

Table 1, Panel A contains a summary of how the final sample for this study was obtained. Starting with 1,437 firm-years, whose fiscal year for the Stock Exchange of Thailand had not ended on December 31during the period 2008-2010 were eliminated. In addition, 176 firm-years in the financial and insurance service sector were removed because the Bank of Thailand and the Department of Insurance strictly and differently regulate this sector. The ownership of firms was manually traced along the holding chain until the ultimate owner was reached. In addition, the 54.2 percent of the initial sample or 684 firm-years were further eliminated due to missing data and the outliers. The shareholder list (Bhor.Aor.Jor.5) would be manually collected from the Department of Business Development, if a firm was held by non-listed companies. The final sample consists of 577 firm-years or 45.8 percent of the initial sample.

Table 1, Panel B presents all final sample breakdowns by industry. The industries are initially divided into eight groups in accordance with the Stock Exchange of Thailand definitions. Once the financial and insurance service sector was eliminated, the remaining seven industries consisted of agriculture and food, consumer products, industrials, property and construction, resource, services, and technology. Most of the firm-years utilized in this study are from services (25%), property and construction (20%), and industrials (16%). The final samples are dispersed among these seven industry sectors. Table 1, Panel C presents the number

of distinct firms in each year. All distinct firms are fairly dispersed in the three years of observation.

Table 2, Panel A presents the percentage of control rights by each type of ultimate holder. Control rights are defined as the ultimate percentage of shares held by a given owner at the beginning of a year, calculated by the weakest link (the smallest percentage) or sum of the weakest links of the percentage of shares held by a given owner of all holding chains. Ultimate holders are classified into two main classes; family firms (FAM) and non-family firms (NON-FAM). The NON-FAM group can be separated into four subcategories; foreign firms (FR), state owned firms (STATE), widely-held firms (WHC), and non-controlling shareholder firms (NON-CS). FAM is a firm ultimately owned by an individual, or a group from the same family, holding control rights of at least 10 percent of the shares. FR is a firm ultimately owned by foreign companies holding control rights of at least 10 percent of shares. STATE is a firm ultimately owned by the government holding control rights of at least 10 percent of shares. WHC is a widely held company with no ultimate owner holding control rights of at least 10 percent of shares. NON-CS is a non-controlling shareholder directly owned by an owner holding control rights of less than 10 percent of the shares. Among the final sample observations, 64 percent of the total sample are family firms, 19 percent are foreign firms, and 9 percent are STATE firms. These data imply that ultimate family ownership dominates most of the listed firms on the Stock Exchange of Thailand (SET). On average, the 577 firm-year observations acquired in this study hold 32.5% of the ultimate control rights[1]. The average percentage of control rights owned by the FAM and NON-FAM groups is moderately equal. The top

[1] Kuntisook (2008) examined a sample from 2000-2006 and found that the average percentage of shares owned by the largest shareholder members was 39.66%. Wang (2006) reports that for the period, 1994-20002 S&P 500 indices, family firms had on average 10.35% of common stock.

three ranks of maximum control rights are STATE (84.6%), FR (83.5%), and FAM (75%), respectively. The minimum control rights of FAM are 10% which is equal to the cut-off point in this research. Overall, there is no major difference in control rights between the FAM and NON-FAM groups.

Table 2, Panel B presents the percentage of cash flow rights broken down by each type of ultimate holder. Cash flow rights are defined as the ultimate percentage of shares held by a given owner at the beginning of the year, calculated by the product or sum of the products of the percentage of shares held by a given owner in all holding chains. On average, the sample possessed 26.6% of the ultimate cash flow rights. As previously described, firms possibly obtain control rights in excess of their cash flow rights through complicated holding structures. The average percentage of cash flow rights (26.6%) shown is slightly less than control rights (32.5%). Besides, the average cash flow rights of FAM (23.1%) is approximately 10 percent less than of NON-FAM (32.7%), implying that FAM are more likely to employ pyramidal structures to obtain higher levels of control rights with lower levels of cash flows. Consistent with the minimum cash flow rights of FAM, the lowest level of cash flows rights that FAM invest in their firms is only 1.6%.

Table 2, Panel C presents the percentage of divergence, the imbalance between control and cash flow rights broken down by each type of ultimate holder. The divergence is calculated as 1 minus the ultimate cash flow rights divided by the ultimate control rights. On average, the sample reveals an imbalance between cash flow and control rights of 17.9%. The divergence of FAM (25%) is approximately 20 percent higher than of NON-FAM (5.5%), implying that FAM are more likely to employ complicated holding structures in order to obtain excess control over their cash flow rights. Thus, the highest

level of divergence, 95.7%, is shown by the type of owner that is dominant on the SET, FAM.

Table 2, Panel D presents the numbers of each type of ultimate owner broken down by industry. The top three industry sectors held by FAM are the services sector (104 firm years), property and construction sector (87 firm years), and industrials (45 firm years), respectively. FR firms (36 firm years) cluster in the industrials sector, whereas STATE firms invest in the resources sector (25 firm years).

Table 2, Panel E presents the average percentage of divergence displayed by each type of ultimate owner broken down by industry. The average percentage of divergence for all industries is in the range 8%-26%, with the highest and the lowest levels of divergence being in the resource (26%) and industrials (8.3%) sectors. Overall, the average percent divergence of FAM (25%) is higher than those of all sample (17.9%) and FAM has the highest divergence level among all types of ultimate owner. Specifically, the average percent divergence of FAM in each industry sector is also higher than their industry's mean in every sector. The highest level of divergence held by FAM is in the resource sector at 53.8%.

Table 2, Panel F presents the average percentage of divergence for each ultimate owner type broken down by year. On average, the mean percentage divergence of all types of ultimate owner was 16.3% in 2008 but this slightly increased to 18.4% in 2009 and to 19.1% in 2010. FAM has the highest levels of average percentage divergence in every year at 22.8% (2008) and 25.9% (2009 and 2010).

Table 3, Panel A presents the holding structure broken down by holder type. Holding structure was classified into four categories: direct holding structure (D), pyramidal holding structure (Py), a combination of both direct and pyramidal holding structure (D&Py), and a cross-holding structure (Cross). Of all samples, 342 firm years are D structure, and 211 firm years are Py structure. The highest numbers of FAM, 178 firm years, employ Py structure. Cross structure is employed at the smallest level of numbers of firms by only 2 firm years[2]. In brief, family firms in Thailand mostly employ direct and pyramidal holding structures. However, in the case of the latter structure type it is harder to identify the ultimate owners than in the former and this also facilitates excess control over cash flow rights.

Table 3, Panel B presents the average and maximum percentage for divergence for each holding structure broken down by holder type. Since D is a direct holding structure, the control rights and cash flow rights are always equal, and therefore the divergence is 0% in this type of holding structure. FAM displays the highest level for average percentage of divergence at 49% owing to pyramidal holding structures. This pyramidal holding structure of FAM is able to raise their divergence extremely up to 96% as shown by the maximum divergence of FAM.

Table 4, Panel A presents the holding complexity level of pyramidal structure broken down by holder type. The holding complexity level is classified into three levels: D represents a direct holding structure that has no complexity, Low represents a low complexity of holding level in which the pyramidal structure is equal to 2 levels, and

[2] Claessens et al. (2000) show evidence suggesting that there is a small number of firms employing cross-holding structure in Thailand.

High represents a high complexity of holding level in which pyramidal structure is equal to 3, 4, 5, or 6 levels. Of the 577 firm-year observations, 342 firm-years employ direct holding structure, 152 firm-years employ a low complexity pyramidal holding structure, and 83 firm-years employ a high complexity pyramidal holding structure. Of the 152 firm years employing a low complexity level of pyramidal structure, 75% (113 firm-years) and 25% (39 firm-years) belong to FAM and NON-FAM groups respectively. Of the 83 firm years employing a high complexity level of pyramidal structure, 95% (79 firm-years) are FAM, whereas only 5% (4 firm-years) are NON-FAM. Overall, most FAM with a pyramidal holding structure are likely to use only two levels of pyramidal holding structure rather than a higher level of complexity.

Table 4, Panel B presents the average and maximum percentage of divergence for each holding complexity level broken down by holder type. Consistent with the descriptive data in Table 3, Panel B, FAMs with a high complexity pyramidal holding structure display the highest level of average divergence at 72%. With a High complexity pyramidal holding structure, FAM show more control over their cash flow rights of up to 96%.

Table 5, Panel A presents the number of firm-years resorting Real EM through each activity. *R_CFO, R_PROD,* and *R_SGA* are the residuals from normal operations. A negative residual represents abnormal negative cash flow, overproduction (*R_PROD* is the residual multiplied by -1), and abnormal negative discretionary expense, suggesting that firms are manipulating earnings in an upward direction through sales activity by granting special discounts or lengthening credit terms to boost sales, overproduction to spread the fixed cost over a greater quantity of goods produced to lower the cost of goods

sold, and cutting SG&A expenses. In contrast, a positive residual shows abnormal positive cash flow from sales, abnormal positive cash flow from underproduction (*R_PROD* is multiplied by -1), and abnormal discretionary expense, suggesting that the firms are engaging in Real EM in a downward direction. Hence, a negative (positive) residual, residual<0 (residual≥0) represents upward (downward) earnings management. For *R_CFO*, sample firms are more likely to engage in Real EM through sales activity to manage earnings upward rather than downward as shown by the negative residual of 396 firm-years (69%) compared to the positive residual for 181 firm-years (31%). For *R_PROD*, 291 (52%) of the firm-years have a negative residual while 272 (48%) have a positive residual, suggesting that Real EM through overproduction in order to manage earnings upward is employed as commonly as underproduction to manage earnings downward. For *R_SGA*, sample firms are more likely to employ real earnings management through cutting SG&A expenses to manage earnings upward rather than downward. This is shown by the negative residual for 336 firm-years (59%) compared to the positive residual for 232 firm-years (41%).

In order to depict Real EM through each activity of the sample, 577 firm-year observations were sorted into 30 intervals based on their *R_CFO*. Figure 1 presents the number of firm-years with *R_CFO* in each interval. The histogram for *R_CFO* was constructed with a width of 0.2534 for the range -3.801 to +3.801. The 1^{st} – 15^{th} (16^{th} - 30^{th}) intervals present the number of firm-years with negative (zero to positive) *R_CFO*. The results suggest that firms to the left (right) of the 16^{th} interval are resorting to Real EM through sales activity in order to manipulate earnings upward (downward). Overall, consistent with the descriptive data shown in Table 5, Panel A, the sample firm-years are more likely to use Real EM through sales activity to manage earnings upward.

For production activity, 563 firm-year observations were sorted into 30 intervals based on their *R_PROD*. Figure 2 presents the number of firm-years with *R_PROD* for each interval. The histogram for *R_PROD* was constructed with a width of 0.035 for the range -0.525 to +0.525. The 1^{st} – 15^{th} (16^{th} -30^{th}) intervals present the number of firm-years with negative (zero to positive) *R_PROD*. The results suggest that firms to the left (right) of the 16^{th} interval are resorting to real earnings management through overproduction (underproduction) in order to manipulate earnings upward (downward). Overall, consistent with the descriptive data shown in Table 5, Panel A, sample firms resort to Real EM through production activity to manage earnings approximately equally in an upward or downward direction.

For discretionary expense activity, 568 firm-year observations were sorted into 30 intervals based on their *R_SGA*. Figure 3 presents the number of firm-years with an *R_SGA* in each interval. The histogram for *R_SGA* was constructed with a width of 0.0177 for the range -0.2655 to +0.2655. The 1^{st} – 15^{th} (16^{th} -30^{th}) intervals present the number of firm-years with negative (zero to positive) *R_SGA*. The results suggest that firms to the left (right) of the 16^{th} interval are resorting to real earnings management through cutting (overspending on) SG&A in order to manipulate earnings upward (downward). Overall, consistent with the descriptive data shown in Table 5, Panel A, sample firms resort to Real EM through discretionary activity to manage earnings approximately equally in an upward or downward direction.

Table 5, Panel B presents descriptive statistics for the dependent variables used in the main tests of the association between family ownership and Real EM. The dependent variables are: R_CFO_t (abnormal cash flow from operation), R_PROD_t (abnormal

production costs), R_SGA_t (abnormal discretionary expenses), $RM1_t$ (aggregated measure of real earnings management through sales and discretionary expense activity), and $RM2_t$ (aggregated measure of real earnings management through production and discretionary expense activity). The hypotheses testing variables are: FAM_{t-1} (dummy variable equal to 1 if the ultimate control right or the percentage of shares held by family members at the beginning of the year is equal to or more than 10%, otherwise it is zero), $\%CONTROL_{t-1}$ (the ultimate percentage of control rights or the percentage of shares held by family members at the beginning of the year calculated by the weakest link or sum of the weakest links of the percentage of shares held by a given family in all holding chains), $\%CF_{t-1}$ (the ultimate percentage of cash flow rights or the percentage of shares held by family members at the beginning of the year, calculated from the product or the sum of the product of shares held by a given family along all chains), and DIV_{t-1} (the divergence between control and rights).

Consistent with evidence shown in Table 5, Panel A, the mean of *R_CFO* is negative and positive for *R_PROD* and *R_SGA*[3], indicating that sample firms are engaged in Real EM through sales activity in the upward direction and employ underproduction and overspending on SG&A to manage earnings downward. The average value of *FAM* is 0.638 indicating that approximately 63.80 percent of the sample consists of firms ultimately controlled by family members, suggesting that the listed firms in the Stock Exchange of Thailand (SET) are concentrated in the hands of family shareholders. On average, the percentage of control rights (*%CONTROL*) and cash flow rights *(%CF*) at

[3] Since the initial firm-year observations used in the real earnings management estimation model were partially reduced owing to the incompleteness of other data required in the hypotheses testing model, the means of the proxies are not zero.

the beginning of the year for the sample firms was 32.50 percent and 26.60 percent respectively. The average percentage of difference between cash flow rights and control rights (*%DIV*) is 17.90 percent, showing that, on average, sample firm-years have 17.90 percent of control rights in excess of their cash flow rights through a pyramidal ownership structure.

The median of the *ZSCORE* is 2.473, which is close to the 2.675 cut-off point for financially distressed firms according to Altman (2000). This suggests that nearly half of the sample firms are financially healthy but the other half are in financial distress. On average, institutions own 0.05 percent of the sample firms. The *INV_AR* is 0.004, showing that the sample firms have higher levels of inventories and receivables than the corresponding industry-year average. The mean value for *BIG4* shows that 36.30 percent of the sample firms are audited by one of the Big 4. In terms of auditor tenure (*AUDIT_TENURE),* the value for the natural logarithm of 1.6 suggests that the sample firms were audited by the same auditing firms for more than 5 years. The mean value of *NOA* is -0.366 and 0.073 at the 75^{th} percentile, suggesting that more than half of the sample firms have net operating assets below their corresponding industry-year. About 28.40 percent of the samples are firms with avoiding loss incentive *(AVOIDLOSS).* For the control variables, the sample firms on average have an *ROA* of 5 percent, a market-to-book ratio *(MTB*) of 1.40, and a short-term and long-term debt to their average total assets (*LEVERAGE*) of 26.3 percent. The median value for assets (*ASSET*) is -0.022, slightly lower than zero, indicating that around half of the sample firms are similar in size to the corresponding industry-year average.

Table 6 reports the Pearson and Spearman correlation among the dependent and independent variables in the main test. The upper triangle presents Pearson product moment correlation, while the lower triangle presents the Spearman rank-order correlation. Since both the Pearson and Spearman correlations are mostly consistent, this study focuses on the Pearson correlation (the upper triangle), in order to facilitate discussion. The high correlations between *R_CFO* and *RM1* (0.998), between *R_PROD* and *RM2* (0.947), and between *R_SGA* and *RM2* (0.685) are mechanical because *RM1* is the sum of *R_CFO* and *R_SGA*, and *RM2* is the sum of *R_PROD* and *R_SGA*. A positive association was found between *R_PROD* and *R_SGA* (Pearson correlation of 0.415), implying that firms employ real earnings manipulation through these two activities. *FAM* is positively correlated with *DIV* (0.307) and negatively correlated with *ASSET* (-0.185), suggesting that the divergence increases with family ownership structure and family firms are smaller size. *DIV* is positively correlated with *MTB* (0.099), indicating that family firms with higher level of divergence have higher growth levels. There are positive, significant correlations between *ZSCORE* and *ROA* (0.408), and *ZSCORE* and *MTB* (0.243) suggesting that firms with better financial health are likely to perform better and to have higher growth. *ZSCORE* is negatively correlated with *NOA* (-0.187), *NI_AVOIDLOSS* (-0.150), and *LEVERAGE* (-0.479), which are consistent with healthy financial firms having a lower level of Accrual EM in the previous period, less incentive to manipulate earnings to avoid loss, and lower levels of debt. *INST_OWN* is positively correlated with *ASSET* (0.211), showing that institutional ownership increases with firm size. *INV_AR* is negatively correlated with *NOA* (-0.169) and *ASSET* (-0.231), indicating that firms with higher levels of resources available for real EM are likely to have a lower level of Accrual EM in the previous period, and are smaller in size. *BIG4* is positively correlated with *AUDIT_TENURE* (0.294), *ASSET* (0.142), and *LEVERAGE* (0.171),

which is consistent with firms audited by BIG4 auditors having the same audit firms, bigger size, and higher levels of debt. *ROA* is positively correlated with *MTB* (0.328) while negatively correlated with *LEVEAGE* (-0.257), which is consistent with the high performance firms having more growth and less debt.

6.2 RESULTS OF ULTIMATE FAMILY OWNERSHIP STRUCUTRE-HYPOTHESIS 1

Results of the H1 test are presented in Table 7 to Table 12. Table 7 reports results with the absolute value models, the interpretation of the association of Real EM and family ownership is reported with no manipulation direction. Table 8 reports results with the positive and negative sign model, the association of Real EM and family ownership is interpreted whether Real EM is in an upward or downward direction. Table 9 to Table 12 shows the sensitivity test results. Table 9 to Table 11 individually reports results of each Real EM activity tested with the sub-sample separated by its positive and negative residuals. Table 12 reports results with the additional variable proxy for pyramidal holding structure.

Table 7 reports the cross-sectional regression for the absolute value of real earnings management proxies on ultimate family ownership (*FAM*), costs associated with Real EM, costs associated with Accrual EM, and control variables. Table 7 presents results using the absolute value of real earnings management through each individual activity and the aggregated activities: sales activity (|*R_CFO*|), production (|*R_PROD*|), and discretionary expenses activity (|*R_SGA*|), sales and discretionary expenses activities *(*|*RM1*|), and production and discretionary expenses activities *(*|*RM2*|*)*. The results obtained from these absolute real earnings management models provide an interpretation

of the real earnings management of family ownership without direction (upward or downward) earnings manipulation.

In Table 7, when considering each activity individually, there is a significant and positive association between |*R_CFO*| and *FAM* (0.1986, significant at the 0.10 level); while there is no significant association between |*R_PROD*| and *FAM*, or |*R_SGA*| and *FAM*. The positive association between |*R_CFO*| and *FAM* indicates that with an increase in an independent variable, a dependent variable is more likely to increase. The dependent variable is the absolute value of Real EM proxy for the level of Real EM without its direction, either upward or downward, this result implies that firms with (without) shares owned by family members are more (less) engaged in Real EM through sales manipulation activities.

For two aggregated measures, there is a significant and positive association between |*RM1*| and *FAM* (0.2058, significant at the 0.10 level), while there is no significant association between |*RM2*| and *FAM*, indicating that firms with (without) shares owned by family members are more (less) engaged in real earnings management through sales manipulation activities and discretionary expenses activities. Additionally, with respect to Table 6 reporting the high correlation between *R_CFO* and *RM1* owing to the mechanical summation of the two proxies (*R_CFO* and *R_SGA*), this implies that the significant and positive coefficient of *FAM* is driven by the |*R_CFO*| model.

Although not directly hypothesized, the residual of each activity is expected to be associated with its own Real EM cost, Accrual EM cost, and incentive determinants. Most of the cost determinants are consistent with this expectation. *ZSCORE*, *INST_OWN*, and *INVT_AR* variables are proxies for cost associated with Real EM. In the |*R_PROD*| model, the coefficient for *INST_OWN* is negative as predicted (significant at the 0.10 level), indicating that institutional investors restrain real activities manipulation due to their rigid monitoring. *INVT_AR* is positive as predicted (significant at the 0.05 level) in the |*R_PROD*| and |*RM2*| models, suggesting that firms with higher level of inventories and account receivables, having more available resources for manipulation, are more engaged in real manipulation through production activity. An association between Real EM cost determinants and real earnings manipulation through sales and discretionary expenses activities is not found in this absolute model.

BIG4, *AUDIT_TENTURE*, and *NOA* variables are proxies for cost associated with Accrual EM. Either positive or negative associations are predicted. The coefficients of *BIG4* are negative in the |*R_CFO*| model (-0.2693, significant at the 0.05 level), |*R_PROD*| model (-0.0349, significant at the 0.01 level), |*RM1*| model (-0.2635, significant at the 0.05 level), and |*RM2*| model (-0.0477, significant at the 0.01 level), indicating that firms audited (not audited) by Big 4 auditors are less (more) engaged in real activity manipulation. This possibly implies that firms audited by Big4 auditors possibly choose Big4 auditors in order to signal the good quality of their financial reports; these groups of firms with good quality of financial reports are not suspected to engage in Accrual EM or Real EM, thus inducing the negative association. The coefficient of *AUDIT_TENURE* is found to be positive in the |*R_SGA*| model as predicted (significant

at the 0.01 level), suggesting that auditor tenure places more restrictions on Accrual EM, hence encouraging firms to substitute it with Real EM. In the |*R_PROD*|, |*R_SGA*|, and |*RM1*| models, the coefficients on *NOA* are negative (significant at the 0.01 levels). Since *NOA* reflects previous Accrual EM, higher current NOA indicates greater past "upward" Accrual EM. Thus, the negative NOA indicates greater past "downward" Accrual EM limiting the accrual resources for further manipulation through accrual and thus a switch to Real EM.

The results of most of the control variables in both individual activity and aggregated activity are similar. The coefficients of *ROA*, *ASSET*, and *LEVERAGE* are negative (significant at the 0.01 level) in the |*R_CFO*| and |*RM1*| models, indicating that firms with lower performance, smaller size, and higher levels of debt engaged in higher levels of Real EM through sales activity. The coefficients of *ROA* and *MTB* are positive (significant at the 0.05 level or better) in the |*R_PROD*|, |*R_SGA*|, and |*RM2*| models, indicating that firms with greater performance and higher levels of growth engaged in higher levels of Real EM through production and discretionary expenses activities.

Table 8 reports the cross-sectional regression of Real EM proxies on ultimate family ownership (*FAM*) interpreted with the positive and the negative directions. This table presents the results of both Real EM through each individual activity; sales activity (*R_CFO*), production (*R_PROD*), and discretionary expenses activity (*R_SGA*), and the aggregated activities: sales and discretionary expense activities *(RM1*), and production and discretionary expense activities *(RM2)*. The results obtained from the sign values of

the Real EM models suggest an interpretation of real earnings management related to family ownership with the direction of earnings manipulation: a negative coefficient indicates "upward" manipulation, whereas a positive coefficient indicates "downward" manipulation. As previously explained, *R_CFO* and *R_SGA* are the residuals (actual value minus predicted value), while *R_PROD* is the residual multiplied by -1. Higher negative values for residuals represent higher negative abnormal values (the actual value is less than the predicted value), indicating the smaller amount of actual cash flow from operations, overproduction, and greater cutting of SG&A expenses. These negative residuals suggest that firms "upwardly" manipulate earnings through real activities. In contrast, greater positive values for residuals represent greater positive abnormal values (the actual value is greater than the predicted value), indicating the greater amount of actual cash flow from operations, underproduction, and greater spending on SG&A expenses. These positive residuals suggest that firms "downwardly" manipulate earnings through real activities.

In Table 8, there is a significant and negative association between *R_CFO* and *FAM* (-0.5197, significant at the 0.01 level), and *RM1* and *FAM* (-0.5287, significant at the 0.01 level), while there is no significant association in *R_PROD, R_SGA*, and *RM2* model. The negative association between *R_CFO* and *FAM* indicates that the more in variable X (*FAM*), the less in variable Y (*R_CFO*). The less in *R_CFO* (the greater negative value of residual) represents Real EM in the "upward" direction. Thus, this result implies that firms with (without) shares owned by family members are more (less) engaged in "upward" Real EM through sales manipulation activities. This result is

consistent with the negative association found between *RM1* and *FAM* (-0.5287, significant at the 0.01 level).

The coefficient of *ZCORE* is negative only in the *R_SGA* (-0.0043, significant at the 0.01 level) and |*RM2*| (-0.0062, significant at the 0.05 level) models, suggesting that firms in a healthy financial condition upwardly manipulate earnings more by cutting SG&A expenses. The coefficient of *INVT_AR* is negative only in the *R_PROD* (-0.1064, significant at the 0.01 level) and |*RM2*| (-0.1341, significant at the 0.01 level) models, indicating that with a greater level of inventories and account receivables, firms are more likely to upwardly manipulate earnings through overproduction. The positive coefficient (0.4057, significant at the 0.01 level) of *BIG4* in the *R_CFO* model indicates that firms audited by the Big 4 are more likely to downwardly manipulate earnings through sales activity. In contrast, there is a negative coefficient (-0.4769, significant at the 0.01 level) on *AUDIT_TENURE* in the *R_CFO* model, suggesting that the greater the number of years a firm is audited by the same audit firm, the higher the level of upward manipulation through sales activity. On the other hand, with the mean (-0.366) and median (-0.354) value of *NOA* reported in Table 5 indicates that most of samples have lower levels of NOA than the corresponding industry-year. This negative NOA indicates a greater past "downward" Accrual EM, restraining Accrual EM in the current period, thus encouraging firms to switch to Real EM for further manipulation, finally inducing the negative association. There is a positive coefficient on *NI_AVOILOSS* (0.3738, significant at the 0.10 level) in the *R_SGA* model, indicating that firms with a higher level of incentive to avoid loss or manage earnings around zero are more likely to downwardly manipulate earnings by overspending on SG&A expenses.

Most coefficients of the control variables in both individual and aggregated measures are consistent. The coefficients on *ROA* are positive (significant at the 0.05 level or better) in every model, indicating that firms with greater performance are more likely to "downwardly" manipulate earnings through lowering sales, underproduction, and overspending on SG&A expenses. The coefficients on *ASSET* are negative (significant at the 0.05 level or better) in the *R_PROD* and *RM2* models, indicating that bigger firms are more likely to employ overproduction to manipulate earnings upwardly. The coefficients of *MTB* are positive (significant at the 0.05 level) in the *R_PROD*, *R_SGA*, and *RM2* models, suggesting that firms with higher levels of growth are more likely to employ underproduction and overspending on SG&A expenses to manipulate earnings downwardly. The coefficients for *LEVERAGE* (significant at the 0.01 level) are positive in the *R_CFO* and *RM1* models, but are negative in the *R_PROD*, *R_SGA*, and *RM2* models, indicating that firms with higher levels of debt are more likely to employ price discount restrictions or shortening of credit terms (to increase liquidity through sales activity) to manage earnings downwardly, while employing overproduction and cutting SG&A expenses to manage earnings upwardly.

6.3 SENSITIVITY TEST OF H1-RESULTS WITH SUB-SAMPLE AND HOLDING STRUCTURE OF FAMILY OWNERSHIP

In order to enhance the results obtained from the H1 test, the full sample of each three individual Real EM activities is split into two groups by its residual sign: negative residual (upward Real EM) and positive residual (downward Real EM). Results of the H1 sensitivity test by subsample are reported in Table 9 to Table 11. In addition, the

pyramidal holding structure is included in the model to test whether the complicated holding structure affects the Real EM of family firms.

6.3.1 SENSITIVITY TEST OF H1- SUBSAMPLE BY UPWARD AND DOWNWARD MANIPULATION DIRECTIONS

Table 9 reports the cross-sectional regression of Real EM through sales activity (*R_CFO*) by separating the full sample into negative and positive residual. The result is consistent with the main test in Table 8. There is a significant and negative association between *R_CFO* and *FAM* (-0.2189, significant at the 0.10 level) in the negative residual subsample, while there is no significant association in the positive residual subsample. This result confirms the negative association between *R_CFO* and *FAM* found in Table 8, indicating that firms with (without) shares owned by family members are more (less) engaged in "upward" Real EM through sales manipulation activities. Most other associated costs, incentive, and control variables are qualitatively similar to those in the full model.

Table 10 reports the cross-sectional regression of Real EM through production activity (*R_PROD*) by using the subsample of negative and positive residual separately. The result is consistent with the main test in Table 8. There is no evidence of association in both the negative and positive residual subsamples. This result confirms the insignificant association between *R_PROD* and *FAM* found in Table 8, indicating that family ownership structure is not associated with engaging in either upward or downward

Real EM through production activities. Most other associated costs, incentive, and control variables are qualitatively similar to those in the full model.

Table 11 reports the cross-sectional regression of Real EM through discretionary expenses activity (*R_SGA*) using the subsample of negative and positive residual separately. The result is consistent with the main test in Table 8. There is no evidence of association in both the negative and positive residual subsamples. This result confirms the insignificant association between *R_SGA* and *FAM* found in Table 8, indicating that family ownership structure is not associated with engaging in either upward or downward Real EM through discretionary expenses.

6.3.2 SENSITIVITY TEST OF H1- INDUCING PYRAMIDAL HOLDING STRUCTURE

Table 12 report the cross-sectional regression of Real EM of each activity on ultimate family ownership (*FAM*) and the effect between family ownership and holding structure *(FAM*PY*). Consistent with results in Table 9, a significant association between Real EM and *FAM* is found only in the *R_CFO* model with a negative sign, implying that firms with (without) shares owned by family members are more (less) engaged in "upward" Real EM through sales manipulation activities. In contrast, in the *R_PROD* and *R_SGA* models, the coefficient of *FAM* is insignificant, the same as found in Table 9, suggesting that there is no evidence for an association between family ownership and Real EM through production and discretionary expenses activities. Additionally, there is no evidence of association between Real EM in every activity and *PY* and its interaction

term, indicating that the pyramidal holding structure of all types of firms and family firms has no association with Real EM.

Regarding the competing notions in the existing theories, the alignment effect and the entrenchment effect, and the inconclusive results from extant studies, the first hypothesis is predicted with no direction. H1 predicts that family ownership structure is associated with a level of Real EM. Consistent with H1, in the |*R_CFO*| and |*RM1*| models, the coefficient of FAM is positive (significant at the 0.10 level), indicating that Real EM through sales activity increases owing to family ownership structure. In contrast, in the |*R_PROD*|, |*R_SGA*|, and |*RM2*| models, the coefficient of FAM is insignificant, suggesting that there is no evidence for an association between family ownership and Real EM through production and discretionary expenses activities. Additionally, the congruent results from the sign model for *R_CFO* and *RM1* show an association between family ownership structure and Real EM but with a negative coefficient. The negative coefficient from the sign model indicates that the increases in earnings manipulation through sales activity due to family ownership structure are in an "upward" direction. As previously described, this upward manipulation through sales activity is likely to impose a cost on the firm because boosting sales by offering limited-time price discounts or offering more lenient credit terms could possibly incur a loss in future profitability or result in lower margins on future sales. In summary, with respect to the traditional view of Real EM imposing greater cost on a firm's competitive advantage, the increasing manipulation due to the family ownership structure is consistent with the entrenchment effect.

Family firms employ long-term horizons of investment but Real EM imposes greater cost on firms in the long run. As previously discussed, depending on the costs that each type of manipulation technique incur and also the associated incentive to manage earnings, the alternative technique to manage earnings is the trading off of all associated costs or limitations and benefits between Accrual EM and Real EM. The result from H1 indicates that family firms forgo their own long term benefits by engaging in upward Real EM only through sales manipulation activity. This result implies that when family firms are constrained with Accrual EM, upward Real EM is perceived as less costly. Besides, family firms also perceive the cost imposed on their firms of each activity owing to Real EM differently. Upward Real EM through sales activity by offering special discounts or extended credit terms is perceived as less costly than Real EM through production and discretionary SG&A expense activities. However, this evidence is based only on the ultimate control rights of the family ownership structure. The descriptive results indicate that the ownership structure of family firms is greatly complicated through their pyramidal holding structure, thus allowing misalignment between control and cash flow rights. The effect of this interesting characteristic of the divergence of family ownership will be further tested in H2.

6.4 RESULTS OF CASH FLOW-CONTROL RIGHTS DIVERGENCE - HYPOTHESIS 2

Results of the H2 test are presented in Table 13 and Table 14. Table 13 reports results with the absolute value model. The interpretation of the association of Real EM and the divergence of family ownership is reported with no manipulation direction. Table 14 reports results with the positive and negative sign model. The association of Real EM

and divergence of family ownership is interpreted whether Real EM is in an upward or downward direction.

Table 13 reports the cross-sectional regression of the absolute value of Real EM on ultimate family ownership (*FAM*), the cash flow-control rights divergence *(DIV)*, the interaction of family ownership and their cash flow-control rights divergence *(FAM*DIV*). Table 13 presents results using the absolute value of real earnings management through each individual activity: sales activity (|*R_CFO*|), production (|*R_PROD*|), and discretionary expenses activity (|*R_SGA*|); and aggregated activities: the summation of sales and discretionary expenses activities *(|RM1|)* and the summation of production and discretionary expenses activities *(|RM2|)*. The results obtained from these absolute real earnings management models provide an interpretation of the real earnings management of family ownership without direction (upward or downward) through earnings manipulation.

In Table 13, there is a significant and positive association between Real EM and *FAM* in the |*R_CFO*| and |*R_SGA*| models (0.2725 and 0.0093, significant at the 0.05 and 0.10 level, respectively), while there is no significant association in the |*R_PROD*|, |*RM1*|, and |*RM2*| models. The positive coefficients of *FAM* in |*R_CFO*| model are consistent with results in Table 7, implying that firms with (without) family owners are more (less) engaged in Real EM through sales activity. Though there is no evidence of association between |*R_SGA*| and *FAM* when only family structure is incorporated in the model as shown in Table 7, when *DIV* and its interaction term are included, there is a significant and positive association between |*R_SGA*| and *FAM* (0.0093, significant at the

0.10 level). This association indicates that firms with (without) family owners are more (less) engaged in Real EM through sales and discretionary expense activities.

There is significant and negative association between Real EM and *DIV* in the |*R_SGA*| model (-0.0507, significant at the 0.05 level), |*RM1*| model (-1.0524, significant at the 0.10 level), and |*RM2*| model (-0.1232, significant at the 0.05 level) implying that firms with higher (lower) levels of divergence are less (more) engaged in Real EM through discretionary expense activity. In other words, Real EM through discretionary expense activity is likely to decrease due to the imbalance between the control and cash flow rights divergence of firms. Since the absolute value of residual is used, these associations are interpreted with no manipulation direction (upward or downward manipulation). As previously described, the evidence of association in the |*RM1*| and |*RM2*| models is driven from |*R_SGA*|.

As hypothesized and predicted in H2, the coefficient on the interaction between *FAM* and *DIV* is found to be positive and significant in |*R_CFO*| (0.9604, significant at 0.10 level), |*R_SGA*| (0.0812, significant at 0.01 level), |*RM1*| (1.3172, significant at 0.05 level), and |*RM2*| (0.1810, significant at 0.01 level). The coefficient of this interaction is insignificant in |*R_PROD*| model. The positive association between the absolute value of Real EM and the interaction of *FAM* and *DIV* indicates that Real EM is likely to increase due to the greater levels of imbalance between cash flow-control rights in family firms. These positive and significant results are found only in the |*R_CFO*|, |*R_SGA*|, |*RM1*|, and |*RM2*| models, implying that firms controlled by family owners with higher (lower)

levels of divergence are more (less) engaged in real earnings management through sales and discretionary expense activities.

As previously tested and described in H1 and shown in Table 7, all of the Real EM and Accrual EM cost determinants are consistent with expectations and those tested in H1 except for *ZSCORE*. In the |*R_CFO*| model, the coefficient on *ZSCORE* is positive as predicted (significant at the 0.10 level), indicating that firms in a healthy financial condition are more engaged in real manipulation through sales activity. This result is consistent with the notion that, for the firm in good financial health, the marginal cost of deviating from optimal business strategies is likely to be low.

In summary, the results from the absolute model in Table 13 are consistent with H2, indicating that firms controlled by family owners with higher (lower) levels of divergence are more (less) engaged in Real EM through sales and discretionary expense activities.

Table 14 reports the cross-sectional regression of Real EM proxies with sign (positive and negative value) on ultimate family ownership (*FAM*), the divergence *(DIV*), the interaction between the divergence and the family ownership structure (*FAM*DIV*), the costs associated with Real EM, the cost associated with Accrual EM, and the control variables. Table 14 presents the results for Real EM through each individual activity: sales activity (*R_CFO*), production (*R_PROD*), and discretionary expenses activity

(*R_SGA*) and the aggregated activities of Real EM: the summation of sales and discretionary expenses activities *(RM1*), and the summation of production and discretionary expenses activities *(RM2)*. The results obtained from these sign values for Real EM models provide an interpretation of the real earnings management of firms with family ownership with the direction of earnings manipulation: a negative coefficient indicates "upward" manipulation, while a positive coefficient indicates "downward" manipulation.

As previously described, *R_CFO* and *R_SGA* are the residuals (actual value minus predicted value), while *R_PROD* is the residual multiplied by -1. Greater negative values of residuals represent greater negative abnormal values (actual value is less than predicted value), indicating smaller amounts of actual cash flow from operations *(R_CFO)*, a greater level of overproduction *(R_PROD)*, and a greater level of cutting SG&A expenses *(R_SGA)*. These negative residuals suggest that firms "upwardly" manipulate earnings through real activities. Contrarily, greater positive values of residuals represent greater positive abnormal values (actual value is greater than predicted value), indicating greater amounts of actual cash flow from operations *(R_CFO)*, greater levels of underproduction *(R_PROD)*, and greater levels of overspending on SG&A expenses *(R_SGA)*. These positive residuals suggest that firms "downwardly" manipulate earnings through real activities.

In Table 14, the coefficients on *FAM* are found negative in the *R_CFO* model (-0.0634, significant at the 0.01 level), *R_PROD* model (-0.0260, significant at the 0.10

level), and *RM1* model (-0.6420, significant at the 0.01 level), while there is no significant association in *R_SGA* model. The negative association in the sign model indicates that the greater the increase in value of independent variable *(FAM),* the greater the decrease in value of dependent variable (*Real EM proxies*; residuals from each activity). The greater negative value of residuals represents Real EM in the "upward" direction. These results imply that firms with (without) family holders are more (less) likely to employ "upward" Real EM through sales and production activities.

In Table 14, the coefficients of *DIV* are significantly positive only in the *R_CFO* model (1.0286, significant at the 0.01 level). The positive association in the sign model indicates that the greater the increase in value of dependent variable *(DIV),* the greater the increase in value of independent variable (*Real EM proxies*; residuals from each activity). The greater positive value of residuals represents Real EM in the "downward" direction. These results imply that firms with a higher (lower) degree of divergence are more (less) likely to employ "downward" Real EM only through sales activities.

The coefficients on *FAM*DIV* are negative only in the *R_CFO* model (-1.2132, significant at the 0.10 level) and *RM1* model (-1.0993, significant at the 0.10 level). The negative association in the sign model indicates that the greater the increase in value of independent variable *(FAM*DIV),* the greater the decrease in value of dependent variable (*Real EM proxies*; residuals from each activity). The greater negative value of residuals represents Real EM in the "upward" direction. These results imply that family firms with

the higher (lower) degree of divergence are more (less) likely to employ “upward” Real EM only through sales activities.

Interestingly, the insignificant results of *R_SGA* in the sign model are different to those tested in the absolute model (Table 13), suggesting that the unstable results are possibly caused from the cancelling out of the negative and positive sign of residuals. Thus, in order to enhance the stability of the test, negative and positive residuals are further examined separately in the sensitivity test.

Overall, the results of association between *R_CFO* and *FAM*DIV* from the sign models without sub-sample test consistent with H2 and with those tested in H1 (*FAM* in Table 8), indicating that family firms with the higher (lower) degree of divergence are more (less) likely to employ “upward” Real EM only through sales activities. There is no evidence of association between *R_PROD* and *FAM*DIV* in both the absolute and the sign models. These insignificant results are consistent with those tested in H1 (FAM) and shown in Table 8, indicating that neither family ownership structure nor divergence has any influence on resorting to Real EM through the production activity of firms. However the insignificant results of association between *R_SGA* and *FAM*DIV* from the sign models are different from those tested in the absolute model as shown in Table 13. The unstable results from *R_SGA* model will be further tested in the sensitivity study.

6.5 SENSITIVITY TEST OF H2-RESULTS WITH SUB-SAMPLE BY UPWARD AND DOWNWARD MANIPULATION DIRECTIONS

To restrict the cancelling out effect of the negative and positive signs of residuals, the full sample of each three individual Real EM activities is split into two groups by residual sign: negative residual (upward Real EM) and positive residual (downward Real EM). Results of H2 sensitivity test by subsample are reported in Table 15 to Table 17.

Table 15 reports the cross-sectional regression of Real EM through sales activity (*R_CFO*) by using the subsample of negative and positive residual separately. The result is consistent with the main test in Table 14. There is a significant association between *R_CFO* and all three variables of interest: *FAM* (-0.3742, significant at the 0.05 level), *DIV* (1.5089, significant at the 0.05 level), and *FAM*DIV* (-1.7977, significant at the 0.01 level), in the negative residual subsample, while there is no significant association in the positive residual subsample.

Firstly, the negative association between *R_CFO* and *FAM* in the negative residual subsample confirms results from the H1 test (Table 7 and Table 9) and results in the sign models of H2 (Table 14). This result indicates that that firms with (without) shares owned by family members are more (less) engaged in “upward” Real EM through sales manipulation activities. Most other associated costs, incentive, and control variables are similar to those in the full model.

Secondly, the positive association between *R_CFO* and *DIV* in the negative residual subsample confirms results in the sign models of H2 (Table 14). This result indicates that that firms with higher (lower) degree of divergence are more (less) likely to engage in "downward" Real EM through sales manipulation activities. Most other associated costs, incentive, and control variables are similar to those in the full model.

Thirdly, the negative association between *R_CFO* and *FAM*DIV* in the negative residual subsample confirms results in the sign models of H2 (Table 14). This result indicates that that family firms with higher (lower) degree of divergence are more (less) likely to engaged in "upward" Real EM through sales manipulation activities. Most other associated costs, incentive, and control variables are similar to those in the full model.

Table 16 reports the cross-sectional regression of Real EM through production activity (*R_PROD*) by using the subsamples of negative and positive residuals separately. The result is consistent with the H1 test (Table 8 and Table 10) and the main test of H2 in Table 13. These congruent results indicate that family ownership, divergence, and divergence of family firms have no influence on Real EM through the production activity of firms.

Table 17 reports the cross-sectional regression of Real EM through discretionary activity (*R_SGA*) by using the subsamples of negative and positive residuals separately. As expected, after restricting the cancelling out effect from the negative and positive

signs of residuals, the result is consistent with H2 in Table 13. There is significant association between *R_SGA* and all three independent variables; *FAM* (-0.0102, significant at the 0.10 level), *DIV* (0.0473, significant at the 0.05 level), and *FAM*DIV* (-0.0539, significant at the 0.05 level), in the negative residual subsample. Besides, there is significant association between *R_SGA* and *FAM*DIV* (0.0950, significant at 0.10 level) in the positive residual subsample as well.

Firstly, the negative association between *R_SGA* and *FAM* in the negative residual subsample is different from the insignificant results in the H1 test (Table 8 and Table 12) and the insignificant results from the full sample of the sign models (Table 14). This result indicates that firms with (without) shares owned by family members are more (less) engaged in "upward" Real EM through discretionary expenses activities. Most other associated costs, incentive, and control variables are similar to those in the full model.

Secondly, the positive association between *R_SGA* and *DIV* in the negative residual subsample is different from the insignificant results from the full sample of the sign models (Table 14). This result indicates that that firms with higher (lower) degree of divergence are more (less) engaged in "downward" Real EM through discretionary expenses activities. Most other associated costs, incentive, and control variables are similar to those in the full model.

Thirdly, the negative associations between *R_SGA* and *FAM*DIV* in both the negative and positive residual subsamples are different from the insignificant results from the full sample of the sign models (Table 14). These results indicate that family firms with higher (lower) degree of divergence are more (less) engaged in "both upward and downward" Real EM through discretionary expenses activities. Most other associated costs, incentive, and control variables are similar to those in the full model.

In summary, according to the H1 test, when the structure of family ownership alone is incorporated into the model, Real EM through sales activity is more likely to be employed. In contrast, in the H2 test, when the specific characteristic of family owners, the excess control over their cash flow rights obtained from the pyramidal holding structure is incorporated, not only Real EM through sales activity is found to take place, but family firms with different levels of divergence are also found to resort to Real EM through discretionary expenses activity as well. Additionally, the results from the sensitivity test restricting the cancelling out effect of the negative and positive signs of residuals consistent with H2, in the *R_CFO* and *R_SGA* models. The negative association between *R_CFO* and *FAM*DIV* shown in the negative residual subsample indicates that family firms with higher (lower) degree of divergence are more (less) likely to employ "upward" Real EM only through sales activity. In the *R_SGA* model, both negative and positive associations between *R_SGA* and *FAM*DIV* are found in the negative and positive residual subsamples, respectively. These results imply that family firms with the higher (lower) degree of divergence are more (less) likely to employ "both upward and downward" Real EM only through discretionary expenses. However, there is no evidence of association between *R_PROD* and *FAM*DIV* in the subsample test, confirming the

insignificant results from the full sample of both the absolute and sign models (Table 13 and Table 14). These insignificant results are also consistent with those tested in H1 (*FAM*) and shown in Table 8, indicating that neither family ownership structure nor divergence has any influence on resorting to Real EM through the production activity of firms

In the H2 model, the negative and significant associations between Real EM and *FAM* are found only in *R_CFO* and *R_SGA* in the negative residual subsample implying that family firms are more likely engage in upward Real EM through boosting sales and cutting SG&A expenses than non-family firms. For sales manipulation activity, as previously discussed, this upward manipulation through boosting sales by offering limited-time price discounts or offering more lenient credit terms is likely to impose a cost on the firm because such activity could possibly incur a loss in future profitability or result in lower margins on future sales. This result is consistent with the entrenchment notion. Besides, there is no significant effect on *FAM* in the positive residual subsample, implying that downward Real EM through lowing sales by cancelling sales discount or shortening credit terms may be perceived as incurring greater cost for family firms because such activities could result in their losing market share in the long run. For discretionary expense activity, this upward manipulation by cutting SG&A expenses is likely to jeopardize the competitive advantage of a firm in the long run, and then the result is consistent with the entrenchment effect.

Though not hypothesized, the positive coefficients on *DIV* found in the *R_CFO* and *R_SGA* models imply that firms in general (regardless of family ownership) with higher (lower) degree of divergence are more (less) likely to engage in "downward" Real EM through sales manipulation and discretionary expenses activities.

However, there is no evidence of association found in production manipulation. Firms can manipulate the cost of goods sold by producing fewer goods than required to meet the expected market demand. By underproduction, a higher level of fixed overhead costs is spread over a smaller number of units, so then the total cost per unit will rise. The considerable cost of underproduction imposed on firms includes the inadequacy of their inventories, which is likely to cause lost opportunities for generating sales and loss of market share to other competitors, jeopardizing the firms' competitive advantage in the long run. On the other hand, overproduction inducing additional holding costs and an obsolete inventory problem could also impose great cost on firms as well. Since family shareholders are long horizon investors, such costs from production activity are perceived as too high for them.

Finally, since advertising and employee training costs are expensed immediately rather than capitalized, the firms' managers can manipulate earnings downward to achieve certain earnings targets in order to create performance slack or smooth earnings. On the other hand, firms can cut advertising and employee training expenses to manipulate earnings upward. By deviating from the optimal strategies of business by overspending or cutting SG&A means firms' competitive advantages is likely to be

harmed in the long run. At a certain level of control rights, family shareholders with higher degrees of divergence are less committed for their cash flows to the firm, especially in the long run. Hence, although the firms' competitive advantage is likely to be jeopardized in the long run, family shareholders with higher levels of divergence are more likely to employ either cutting or overspending on SG&A to manage earnings upward or downward owing to their smaller amount of cash flows committed to the firms. Contrarily, family shareholders with lower levels of divergence are more committed to their own cash flows at certain levels of control rights. Thus, family shareholders with lower levels of divergence are less likely to employ cutting or overspending on SG&A to manipulate earnings upward or downward. Overall, the increase in upward or downward earnings manipulation through discretionary SG&A expense activities due to the increase in the degree of divergence of family shareholders is consistent with the entrenchment effect.

Overall, family firms with different degrees of divergence perceive Real EM through each operating activity differently. Firms with (without) family shareholders are more (less) likely to employ upward Real EM only through sales activity. In addition, family firms with higher (lower) degrees of cash flow-control rights divergence are more (less) likely to employ upward Real EM through sales manipulation activity and both upward and downward Real EM through cutting and overspending on SG&A activities.

CHAPTER VII

CONCLUSIONS AND LIMITATIONS

This study provides a unique dataset of evidence over the period 2008-2010 to examine whether family firms engage in real earnings management through operating activities based on their ultimate control rights, and whether the different degree of cash flow-control rights divergence of family firms has an influence on their earnings manipulation through real operating activities. Three operating activities of Real EM were included in the investigation: sales, production, and discretionary expense activities. The cross-sectional models developed by Roychowdhury (2006) are employed to estimate the abnormal level of real transactions as proxies for Real EM.

First, as predicted in H1, family ownership structure is associated with a level of Real EM, the results suggest that firms with (without) ultimate family shareholders are more (less) likely to engage in Real EM only through sales activity. In other words, Real EM through sales activity increases due to the ultimate family ownership structure. In addition, this greater level of real manipulation through sales activity by the ultimate family shareholders is employed in an "upward" direction. The upward manipulation through sales activity is likely to impose a cost on firms because boosting sales by offering limited-time price discounts or offering more lenient credit terms could incur a loss in future profitability or result in lower margins on future sales. Thus, the findings are consistent with the entrenchment effect. However, this evidence is based solely on the ultimate control rights of the family ownership structure where the special characteristics resulting from the complicated pyramidal holding structure of family firms in Thailand, the degree of cash flow-control rights divergence, is set aside.

Second, as hypothesized in H2, the degree of cash flow-control rights divergence of a family firm is positively associated with a level of Real EM. The results indicate that firms with higher (lower) degrees of cash flow-control rights divergence are more (less) likely to engage in Real EM through both sales manipulation and discretionary expense activities. The degree of cash flow-control rights divergence of family firms has no influence on the level of Real EM through production activity. Furthermore, this greater level of Real EM increased as the degree of cash flow-control rights divergence of family shareholders is employed in a "downward" direction for sales manipulation activity and both "upward and downward" directions for discretionary expense activity. In other words, family firms with higher (lower) degrees of cash flow-control rights divergence "upwardly" manipulate earnings more (less) through boosting sales and "upwardly and downwardly" manipulate earnings through cutting and overspending on SG&A expenses.

Overall, when only family ownership is taken into the account for the H1 test, the evidence of Real EM by family firms is found only through sales manipulation activity. However when the divergence of family firms is incorporated in the H2 test, the evidence shows that Real EM by family firms with higher degree of divergence is found through both sales manipulation and discretionary expense activities. Thus, the imbalance between cash flow-control rights provides the important attribute of family ownership characteristics and more insightful explanation in the study. However, the results are consistent with both hypotheses, but not for all activities. The alternative explanation for the insignificant result shown in production activity may be firms' perception of the difficulty of each activity. Regarding the decision to engage in Real EM through sales manipulation and discretionary expenses activity, there are few limitations to be

concerned with, thus, it is easier and takes less time in advance to do so. Whereas when engaging in Real EM through production activity, either through over or under production, various resource availabilities have to be considered such as idle capacity, labor supply, and raw material supplied from various suppliers in advance, etc. These limitations could possibly be the barriers to firms seeking to engage in Real EM through production activity.

Turning to sales manipulation and discretionary expense activities, Real EM through sales activity such as special or time-limited discount strategies and different credit term policies could possibly hurt firms' profitability in the future, as previously explained. Similarly, Real EM through discretionary expense activity, either cutting or overspending SG&A expenses, is more likely to impose greater costs on firms due to the diminishing of their competitive advantage in the long run. Consistent with the entrenchment effect, family shareholders with higher (lower) degrees of cash flow-control rights divergence commit less (more) of their own cash flows to firms; as their interests are less (more) aligned with other shareholders, there is a greater (less) tendency for them to expropriate wealth from other shareholders. Finally, they are more (less) likely to engage in downward manipulation through underproduction and overspending on SG&A expenses activities.

As noted, engaging in Real EM imposes costs on firms in the long run. It is interesting then to consider that family shareholders, who have long-term investment horizons, should have incentives to commit actions that could possibly hurt themselves in

the future. Only the capital market incentive to manage earnings for avoiding loss is used in this research, however, there are other various possible explanations for family firms' motivations to engage in Real EM such as management compensation plans, tax benefits, expropriation of wealth by siphoning out, etc. of the potential of these factors to act as incentives to the management of earnings by family firms is an interesting area for future research.

The findings contribute to the earnings management literature since there are few extant studies focused on the association between family ownership and Real EM. Additionally, it is important to note that simply considering one share-one vote is not the case applied for listed firms in Thailand. Most firms listed in the Stock Exchange of Thailand (SET) and ultimately controlled by groups of family members either directly or through the employment of complicated holding structures such as pyramidal structures. In this way, family members can obtain control rights in excess of their cash flow rights.

These findings shed the light on the characteristics of the family firms dominating the capital market in Thailand, especially the techniques used to gain excessive control with lower amounts of investment which, in turn, provides an incentive to expropriate other shareholders' wealth. The results are valuable and should be of interest to various parties such as regulators, standard setters, and capital market policy makers. The evidence implies that their efforts to restrict one technique of manipulation could possibly result in another technique being employed by family owners which is more likely to impose greater costs on investors in the long run.

Nevertheless, the determination of ultimate ownership in this research is inevitably limited due to unavailable or ambiguous information such as private firms being registered as BVI (British Virgin Islands) companies or registered in other countries, the changing of surnames due to marriage, and the use of nominee holders for families.

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Appendices

Appendix A

Example of shareholding structures

Pyramidal structure

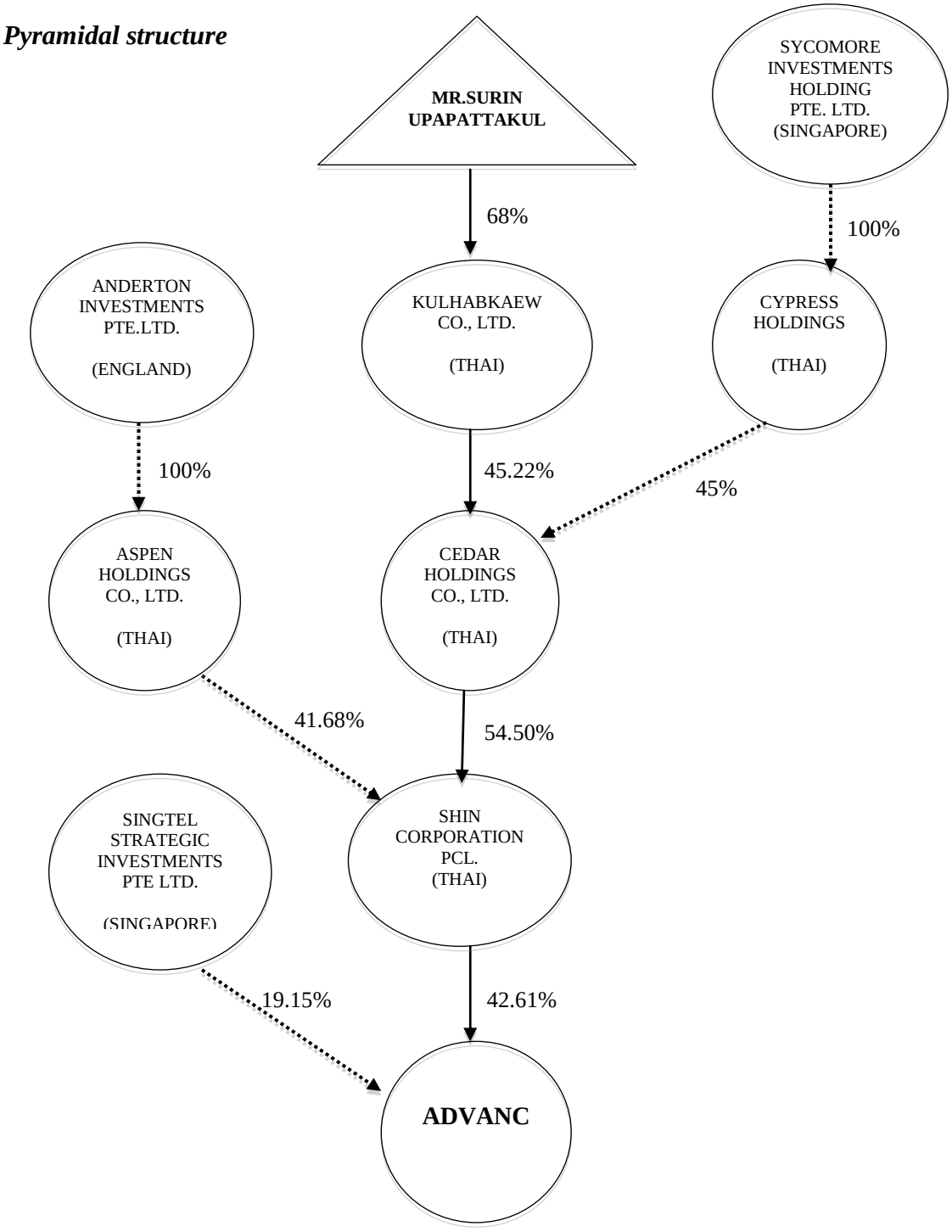


Figure 1: Pyramidal Structure

Cash flow right = 68% * 45.22% * 54.5% * 42.61% = 7.14%
Control right = 42.61%
Divergence = 1 - (7.14/42.61) = 83.24%

In Figure 1, the thick line represents the higher percentage of shares which is selected to be traced to the ultimate owner. The dotted line represents the lower percentage of shares which is not traced. From the top of this pyramid, Mr. Surin from the Upapattakul family owns 68% of the stock of the 1st level private firm, Kulhabkaew, which has 45.22% of the stock of the 2nd level private firm, Cedar Holdings. Cedar Holdings holds 54.50% of the public firm in the 3rd level, Shin Corporation Public Company Limited, which eventually holds 42.61% of the Advance Info Service Public Company Limited (ADVANC).

From the ultimate cash flow rights standpoint, Mr. Surin owns about 7.14% of the cash flow rights *(%CF)* of ADVANC, or the product of the four ownership stakes along the chain. From the ultimate control right standpoint, Mr. Surin controls 42.61% *(%CONTROL)* of ADVANC, or the weakest link in the chain of control rights. The cash flow-control rights divergence is equal to 83.24%.

ADVANC is defined as a family firm according to the 10% ultimate control rights cut-off point. I would also say that the ownership structure is a pyramidal and numbers of pyramid holding levels is four.

Appendix A (continued)

Several control rights chains

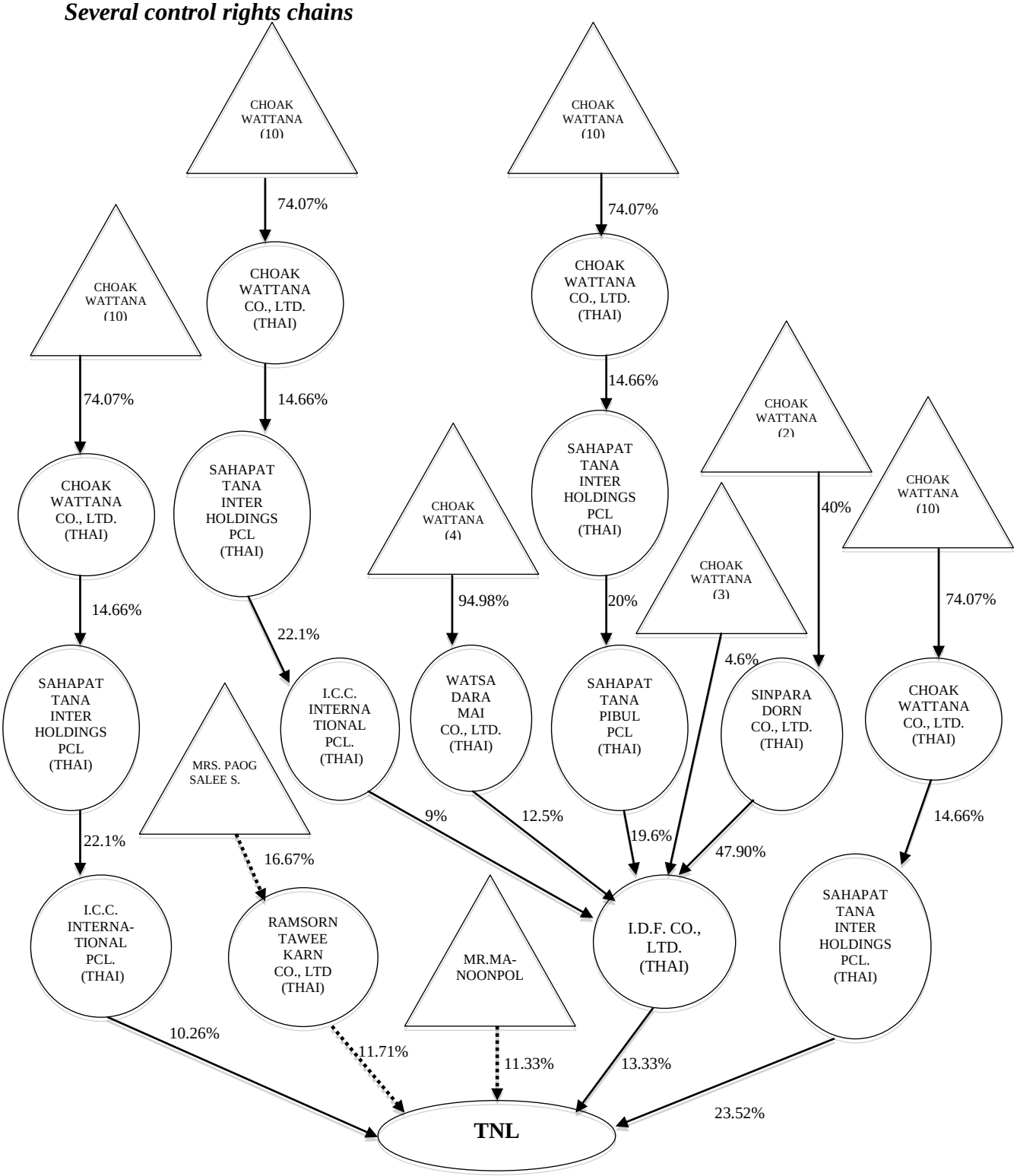


Figure 2: Several control rights chains

Cash flow right = (10.26%*22.1%*14.66%*74.07%) + (13.33%*9%*22.1%*14.66%*74.07%) + (13.33%*12.5%*94.98%) + (13.33%*19.6%*20%*14.66%*74.07%) + (13.33%*4.6%) + (13.33%*47.90%*40%) + (23.52%*14.66%*74.07%)
= 11.62%

Control right = 10.26% + 9% + 12.5% +13.33% + 4.6% + 13.33% + 14.66% = 77.68%

Divergence = 1 - (11.62%/77.68%) = 85.04%

In Figure 2, the thick line represents the higher percentage of shares which is selected to be traced to the ultimate owner. The dotted line represents the lower percentage of shares which is not traced. The Choakwattana family owns TNL (Thanulux Public Company Limited) through seven holding chains; one chain is held through I.C.C. International Public Company Limited, five chains are held through I.D.F. Company Limited, and one chain through Sahapattana Inter Holdings Public Company Limited.

From the ultimate cash flow rights standpoint, the Choakwattana family owns about 11.62% of the cash flow rights *(%CF)* of TNL, or the seven products of the seven ownership stake holding chains. From the ultimate control right standpoint, the Choakwattana family controls 77.68% *(%CONTROL)* of TNL, or the sum of the seven weakest links in the seven chains of control rights. The cash flow-control rights divergence is equal to 85.04%.

TNL is defined as a family firm according to the 10% ultimate control rights cut-off point. The ownership structure is pyramidal. According to the maximum number of holding levels from these seven holding chains, the number of pyramid holding levels is five.

Appendix A (continued)

Cross holding structure

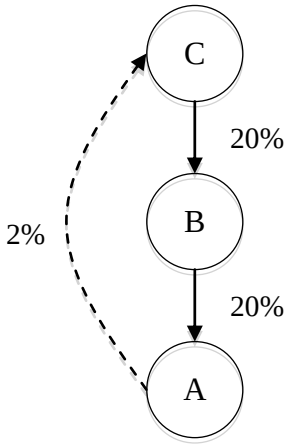


Figure 3: Cross holding Structure
Cash flow right = 20%x20% = 4%
Control right = 20%

As depicted in Figure 2, suppose, that publicly traded Firm C owns 20% of the stock of Firm B, and Firm B own 20% of the stock of Firm A, and Firm A also own 2% of the stock in Firm C. Firm C is therefore the ultimate owner of Firm A; Firm A is owned through a pyramid; and there is a cross holding (CROSS) by Firm A. On the other hand, if instead of Firm A owing 2% in Firm C, it were the case that Firm B owned 2% in Firm C, this would not be a cross holding in Firm C by Firm A.

Appendix B

Variable Definitions

Variables	Description
Panel A: Dependent Variables	
R_CFO	Abnormal cash flow from operations calculated by subtracting the normal level of CFO obtained from Eq.1 with the actual CFO (the residual value of CFO).
R_PROD	Abnormal production costs calculated by subtracting the normal level of production costs obtained from Eq.4 with the actual production costs (the residual value of production costs) multiplied by minus 1.
R_SGA	Abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses obtained from Eq.5 with the actual level of such expenses (the residual value of discretionary expenses).
RM1	An aggregated measure of real earnings management through sales and discretionary expense activity calculated by the sum of *R_CFO* and *R_SGA* This aggregate measure excludes abnormal cash flow from operations *(R_CFO).*
RM2	An aggregated measure of real earnings management through production and discretionary expense activity calculated by the sum of *R_PROD* and *R_SGA* This aggregate measure excludes abnormal production *(R_PROD).*

Appendix B *(continued)*

Variables	Description
Panel B: Independent Variables of interest	
FAM	Dummy variable equal to 1 if the ultimate cash flow right (percentage of shares) held by a family member is equal or more than 10%, zero otherwise.
%CF	The ultimate percentage of shares held by a family member, calculated by the product or the sum of the product of shares held by a given family along all chains.
%CONTROL	The ultimate percentage of voting rights held by family member, calculated by the weakest link or sum of the weakest links of percentage of shares held by a given family in all chains.
DIV	The industry-year adjusted divergence between cash flow and control rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%FAM_V).*
Panel C: Cost RM variables	
ZSCORE	Z-score from modified version of Altman's Z-score.
INST_OWN	The percentage of institutional ownership at the beginning of the year.
INV_AR	The sum of industry-year adjusted inventories and receivables as a percentage of total assets.

Appendix B *(continued)*

Appendix B *(continued)*

Variables	Description
Panel D: Cost AM variables	
BIG4	Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.
AUDIT_TENURE	The natural logarithm of the number of years the auditor has audited the firms.
NOA	Net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.
Panel E: Incentives variables	
AVOIDLOSS	Dummy variable equal to 1 if net income scaled by lagged assets in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings histogram, zero otherwise.
NI_AVOIDLOSS	The interaction between *AVOIDLOSS* dummy variable and net income scaled by lagged assets
Panel F: Control variables	
ROA	Return on assets; income before extraordinary items divided by beginning of period total assets.
ASSET	The industry-year adjusted log value of total assets.
MTB	The market-to-book ratio.
LEVERAGE	The sum of short-term and long-term debt divided by average total assets.

Appendix B *(continued)*

Variables	Description
Panel G: Independent variables for Sensitivity test	
PY	Dummy variable equal to 1 if the holding structure is pyramidal, zero otherwise.

Appendix C

The histogram of residual and earnings interval

Figure 1

This is the number of firm-year observations in each *R_CFO* interval. The histogram of *R_CFO* is constructed with widths of 0.4483 for the range -6.7245 to +6.7245. The 15th interval presents *R_CFO* for the range -0.4483 to less than zero. The 16th interval presents *R_CFO* for the range from zero to +0.4483. The 1st-15th intervals present number of firm-years with *R_CFO* less than zero.

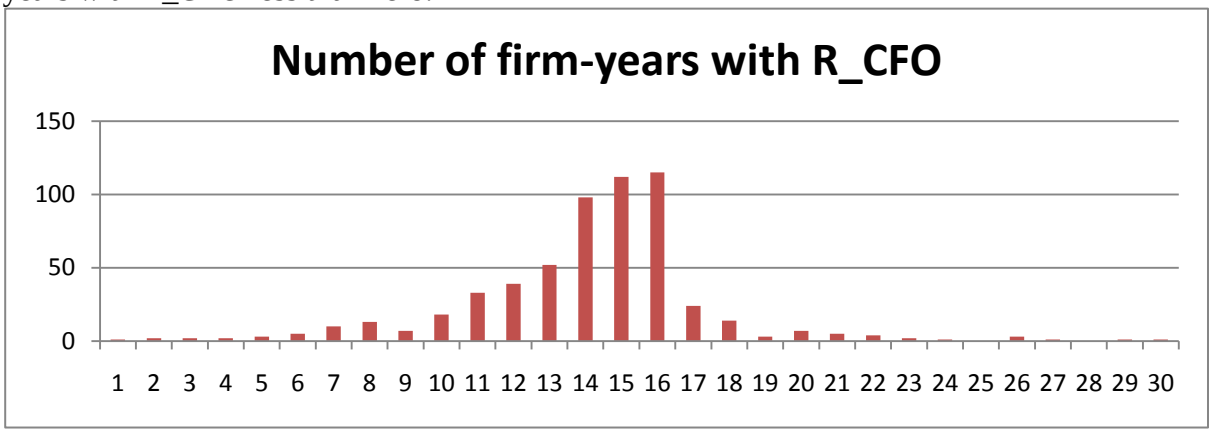


Figure 2 This is the number of firm-year observations in each *R_PROD* interval. The histogram of *R_PROD* is constructed with widths of 0.035 for the range -0.525 to +0.525. The 15th interval presents *R_PROD* for the range -0.035 to less than zero. The 16th interval presents *R_PROD* for the range from zero to +0.035. The 1st-15th intervals present number of firm-years with *R_PROD* less than zero.

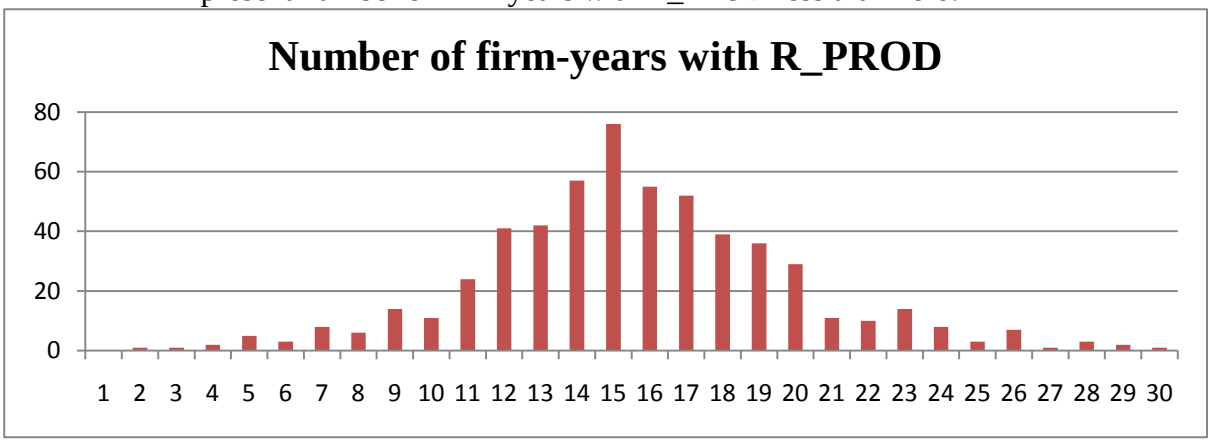


Figure 3

This is the number of firm year observations in each *R_SGA* interval. The histogram of *R_SGA* is constructed with widths of 0.0177 for the range -0.2655 to +0.2655. The 15th interval presents *R_SGA* for the range -0.0177 to less than zero. The 16th interval presents *R_SGA* for the range from zero to +0.0177. The 1st-15th intervals present number of firm-years with *R_SGA* less than zero.

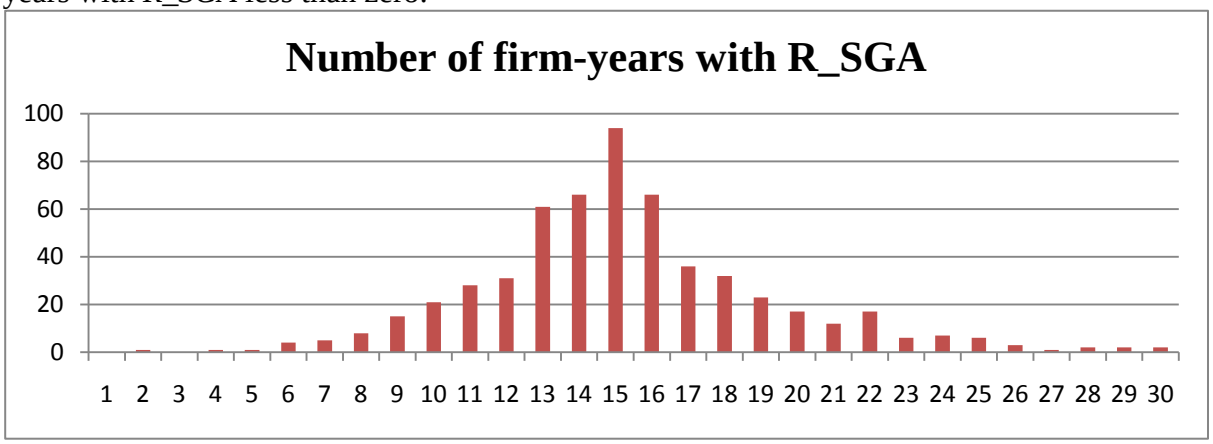
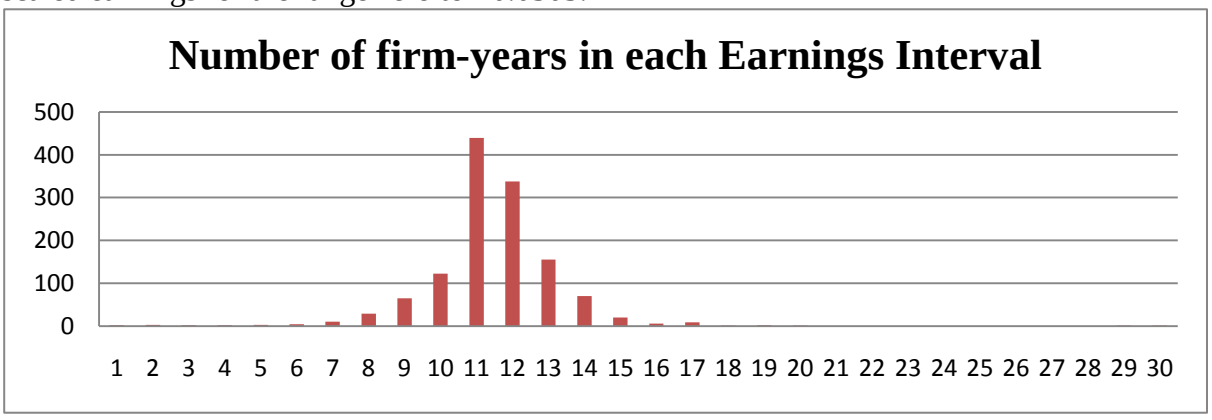


Figure 4

This is the number of firm year observations grouped in 30 intervals based on net income scaled by total assets at the beginning of the year. The histogram of scaled earnings is constructed with widths of 0.0505 for the range -0.505 to +1.01. The 11th interval presents scaled earnings for the range zero to +0.0505.



Tables

Table 1

Sample Description

Panel A: Sample Selection of Stock Exchange of Thailand Firms from 2008-2010

	N	*%*
Number of firm years in the Stock Exchange of Thailand 2008-2010	1,437	
Financial Services and Insurance Firms	(176)	
	1,261	100.0
Unavailable/Incomplete/Missing data/Outliers	(684)	(54.2)
Final Sample (number of firm years used in hypotheses testing model)	577[a)]	45.8
Final Sample (number of firms)	195	

Panel B: Sample breakdown by Industry

	Total Firm Years		*FAM* [b)]		*NON-FAM* [c)]	
Industry	*N*	*%*	*N*	*%*	*N*	*%*
Agro and Food	56	10%	43	12%	13	6%
Consumer Products	49	9%	38	10%	11	5%
Industrials	95	16%	45	12%	50	24%
Property and Construction	114	20%	87	24%	27	13%
Resource	56	10%	17	5%	39	19%
Services	144	25%	104	28%	40	19%
Technology	63	11%	34	9%	29	14%
Total	577	100%	368	100%	209	100%

Panel C: Sample breakdown by Year

	Total Firm Years		*FAM*		*NON-FAM*	
Year	*N*	*%*	*N*	*%*	*N*	*%*
2008	187	33%	114	31%	73	35%
2009	195	34%	125	34%	70	33%
2010	195	33%	129	35%	66	32%
Total	577	100%	368	100%	209	100%

a) The number of final sample in each model is different according to the specific data requirement and outlier deletion. The number shown is from R_CFO (Sign model).

b) FAM: Firms ultimately owned by an individual person or group of family members.

c) NON-FAM: Firms ultimately owned by a foreign company, government, or other company.

Table 2

Ultimate Ownership Description

Panel A: %Control Rights by Type of Ultimate Holder

	Firm Years Obs.		*%Control Rights*			
Holder Type	*N*	*%*	*Mean*	*Med*	*Max*	*Min*
FAM	368	64%	31.3%	30.9%	75.0%	10.0%
NON-FAM	209	36%	34.7%	30.7%	84.6%	4.4%
FR [a)]	113	19%	40.7%	40.0%	83.5%	14.4%
STATE [b)]	50	9%	40.5%	42.6%	84.6%	16.7%
WHC [c)]	16	3%	23.9%	15.3%	56.4%	11.9%
NON-CS [d)]	30	5%	8.5%	8.9%	9.9%	4.4%
Total	577	100%	32.5%	30.9%	84.6%	4.4%

Panel B: %Cash Flow by Type of Ultimate Holder

	Firm Years Obs.		*%Cash Flow Rights*			
Holder Type	*N*	*%*	*Mean*	*Med*	*Max*	*Min*
FAM	368	64%	23.1%	19.5%	75.0%	1.6%
NON-FAM	209	36%	32.7%	29.9%	84.6%	4.2 %
FR [a)]	113	19%	39.6%	40.0%	82.3%	4.2%
STATE [b)]	50	9%	34.4%	30.0%	84.6%	11.5%
WHC [c)]	16	3%	23.9%	15.3%	56.4%	11.9%
NON-CS [d)]	30	5%	8.5%	8.9%	9.9%	4.4%
Total	577	100%	26.6%	23.8%	84.6%	1.6%

Panel C: %Divergence by Type of Ultimate Holder

	Firm Years Obs.		*%Divergence*			
Holder Type	*N*	*%*	*Mean*	*Med*	*Max*	*Min*
FAM	368	64%	25.0%	0.0%	95.7%	0.0%
NON-FAM	209	36%	5.5%	0.0%	84.6%	0.0%
FR [a)]	113	19%	3.1%	0.0%	75.0%	0.0%
STATE [b)]	50	9%	16.0%	0.0%	49.0%	0.0%
WHC [c)]	16	3%	0.0%	0.0%	0.0%	0.0%
NON-CS [d)]	30	5%	0.0%	0.0%	0.0%	0.0%
Total	577	100%	17.9%	0.0%	95.7%	0.0%

Table 2 (Continued)
Ultimate Ownership Description

Panel D: Type of Ultimate Holder by Industry

	Number of Firm Years						*% Number of Firm Years*					
	FAM	FR	*STATE*	*WHC*	*NON-CS*	*Total*	*FAM*	*FR*	*STATE*	*WHC*	*NON-CS*	*Total*
AGRO	43	7	0	0	6	56	12%	6%	0%	0%	20%	10%
CON-SUMP	38	5	0	3	3	49	10%	4%	0%	19%	10%	9%
INDUS	45	36	3	3	8	95	12%	32%	6%	19%	27%	16%
PROP-CON	87	11	9	6	1	114	24%	10%	18%	38%	3%	20%
RE-SOURC	17	11	25	0	3	56	5%	10%	50%	0%	10%	10%
SER-VICE	104	23	10	2	5	144	28%	20%	20%	12%	17%	25%
TECH	34	20	3	2	4	63	9%	18%	6%	12%	13%	11%
Total	368	113	50	16	30	577	100%	100%	100%	100%	100%	100%

Panel E: Mean % Divergence of the Ultimate Holder by Industry

	Mean % Divergence					
			NON-FAM			
	Industry	*FAM*	*FR*	*STATE*	*WHC*	*NON-CS*
Agro & Food	17.0%	22.2%	0%	n/a	n/a	0%
Consumer Products	19.5%	25.2%	0%	n/a	0%	0%
Industrials	8.3%	9.5%	7.6%	31.4%	0%	0%
Property & Construction	11.2%	13.3%	0%	12.8%	0%	0%
Resource	26.0%	53.8%	0%	21.6%	n/a	0%
Services	25.0%	33.7%	1.9%	4.9%	0%	0%
Technology	20.7%	37.4%	1.6%	0%	0%	0%
Total	17.9%	25.0%	3.1%	16.0%	0%	0%

Table 2 (Continued)
Ultimate Ownership Description

Panel F: Mean% Divergence of each Ultimate Holder Type by Year

			Mean% Divergence				
				NON-FAM			
Year	*N*	*%N*	*FAM*	*FR*	*STATE*	*WHC*	*NON-CS*
2008	187	16.3%	22.8%	3.7%	17.6%	0%	0%
2009	195	18.4%	25.9%	2.3%	15.6%	0%	0%
2010	195	19.1%	25.9%	3.3%	14.7%	0%	0%
Total	577	17.9%	25.0%	3.1%	16.0%	0%	0%

a) FR: Foreign company holder
b) STATE: Government holder
c) WHC: Widely-Held-Company holder
d) NON-CS: Non-Controlling Shareholder

Table 3
Holding Structure Description

Panel A: Holding Structure by Ultimate Holder Type

	Number of Firm-Years					*% Number of Firm-Years*				
	D [a]	*Py* [b]	*D&Py* [c]	*Cross* [d]	*Total*	*D*	*Py*	*D&Py*	*Cross*	*Total*
FAM	176	178	14	0	368	51%	84%	64%	0%	64%
NON-FAM	166	33	8	2	209	49%	16%	36%	100%	36%
FR	97	8	8	0	113	29%	4%	36%	0%	19%
STATE	25	25	0	0	50	7%	12%	0%	0%	9%
WHC	14	0	0	2	16	4%	0%	0%	100%	3%
NON-CS	30	0	0	0	30	9%	0%	0%	0%	5%
Total	342	211	22	2	577	100%	100%	100%	100%	100%

Panel B: Mean and Maximum % Divergence of each Holding Structure by Ultimate Holder Type

	Mean% Divergence					*Max% Divergence*				
	D [a]	*Py* [b]	*D&P* [c]	*Cross* [d]	*Total*	*D*	*Py*	*D&Py*	*Cross*	*Total*
FAM	0%	49%	31%	n/a	25%	0%	96%	47%	n/a	96%
NON-FAM	0%	31%	15%	0%	6%	0%	75%	24%	0%	75%
FR	0%	28%	15%	n/a	3%	0%	75%	24%	n/a	75%
STATE	0%	32%	n/a	n/a	16%	0%	49%	n/a%	n/a	49%
WHC	0%	n/a	n/a	0%	0%	0%	n/a	n/a%	0%	0%
NON-CS	0%	n/a	n/a	n/a	0%	0%	n/a	n/a%	n/a	0%
Total	0%	46%	25%	0%	18%	0%	96%	47%	0%	96%

a) D: Direct Holding
b) Py: Pyramidal Holding
c) D&Py: Direct and Pyramidal Holding
d) Cross: Cross Holding

Table 4

Holding Complexity Level of Pyramidal Structure Description

Panel A: Holding Complexity level by Ultimate Holder Type

	Number of Firm-Years				*% Number of Firm-Years*			
	D [a]	*Low* [b]	*High* [c]	*Total*	*D* [a]	*Low* [b]	*High* [c]	*Total*
FAM	176	113	79	368	51%	75%	95%	64%
NON-FAM	166	39	4	209	49%	25%	5%	36%
FR	97	15	1	113	28%	10%	1%	19%
STATE	25	22	3	50	8%	14%	4%	9%
WHC	14	2	0	16	4%	1%	0%	3%
NON-CS	30	0	0	30	9%	0%	0%	5%
Total	342	152	83	577	100%	100%	100%	100%

Panel B: Mean and Maximum % Divergence of each Holding Complexity level by Ultimate Holder Type

	Mean% Divergence				*Max% Divergence*			
	D [a]	*Low* [b]	*High* [c]	*Total*	*D* [a]	*Low* [b]	*High* [c]	*Total*
FAM	0%	31%	72%	25%	0%	87%	96%	96%
NON-FAM	0%	26%	29%	5%	0%	75%	39%	39%
FR	0%	23%	0%	3%	0%	75%	0%	75%
STATE	0%	31%	38%	16%	0%	49%	39%	49%
WHC	0%	0%	n/a	0%	0%	0%	n/a	0%
NON-CS	0%	n/a	n/a	0%	0%	n/a	n/a	0%
Total	0%	35%	38%	18%	0%	87%	96%	96%

a) D: Direct Holding

b) Low: Low complexity of holding: level of pyramidal structure is equal to 2 levels.

c) High: High complexity of holding: level of pyramidal structure is equal to 3, 4, 5, and 6 levels.

Table 5

Descriptive Statistics

Panel A: Number of Firm-Years with Real Earnings Management

	N	*Residual<0*		*Residual≥0*	
R_CFO_t	577	396	69%	181	31%
R_PROD_t	563	291	52%	272	48%
R_SGA_{it}	568	336	59%	232	41%

Panel B: Descriptive Statistics of Dependent and Independent Variables

Variable	*N*	*Mean*	*Median*	*Std.Dev.*	*P25*	*P75*	*P90*
Dependent Variables							
R_CFO_t	577	-0.621	-0.430	1.510	-1.196	0.112	0.513
R_PROD_t	563	0.004	0.005	0.223	-0.092	0.095	0.220
R_SGA_{it}	568	0.007	-0.007	0.098	-0.045	0.036	0.117
$RM1_{it}$	577	-0.614	-0.415	1.510	-1.253	0.087	0.546
$RM2_{it}$	564	0.011	-0.012	0.279	-0.134	0.124	0.327
Hypotheses Test Variables							
FAM_{t-1}	577	0.638	1.000	0.481	0.000	1.000	1.000
$\%CONTROL_{t-1}$	577	0.325	0.309	0.167	0.179	0.439	0.541
$\%CF_{t-1}$	577	0.266	0.238	0.181	0.118	0.391	0.515
$\%DIV_{t-1}$	577	0.179	0.000	0.297	0.000	0.339	0.750
Real EM Cost Variables							
$ZSCORE_{t-1}$	577	3.134	2.437	2.768	1.522	3.818	5.937
$INST\_OWN_{t-1}$	577	0.054	0.000	0.780	0.000	0.000	0.000
INV_AR_{t-1}	577	0.004	-0.035	0.100	-0.143	0.131	0.292
Accrual EM Cost Variables							
$BIG4_t$	577	0.363	0.000	0.481	0.000	1.000	1.000
$AUDIT\_TENURE_t$	577	1.600	1.792	0.706	1.099	2.197	2.301
NOA_{t-1}	577	-0.366	-0.354	1.644	-1.316	0.073	0.809
Incentive Variables							
$AVOIDLOSS_t$	577	0.284	0.000	0.451	0.000	1.000	1.000
$NI\_AVOIDLOSS_t$	577	0.008	0.000	0.014	0.000	0.006	0.035
Control Variables							
ROA_t	577	0.050	0.053	0.096	0.013	0.094	0.144
$ASSET_t$	577	0.110	-0.022	0.617	-0.365	0.543	0.978
MTB_t	577	1.404	1.010	1.317	0.620	1.760	2.980
$LEVERAGE_t$	577	0.263	0.255	0.210	0.063	0.412	0.544

[a] The following regressions are estimated cross-sectionally for each industry-year for the period 2008-2010. Seven industry groupings in compliance with the Stock Exchange of Thailand (SET) are used. Each model is estimated for the industry-years having at least 15 observations.

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

R_CFO_t is abnormal cash flow from operations calculated by subtracting the normal level of CFO obtained from Eq. (1) with the actual CFO (the residual value of CFO).

R_PROD_t *is* abnormal production costs calculated by subtracting the normal level of production costs obtained from Eq. (2) with the actual production costs (the residual value of production costs) multiplied by -1.

R_SGA_t is abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses obtained from Eq. (3) with the actual level of such expenses (the residual value of discretionary expenses).

$RM1_t$ is the aggregated measure of real earnings management through sales and discretionary expense activity calculated by sum of R_CFO_t and R_SGA_t.

$RM2_t$ is the aggregated measure of real earnings management through production and discretionary expense activity calculated by sum of R_PROD_t and R_SGA_t.

FAM_{t-1} is a dummy variable equal to 1 if the ultimate control right (percentage of shares) held by a family member at the beginning of the year is equal to or more than 10%, zero otherwise.

$\%CONTROL_{t-1}$ *is* the ultimate percentage of control rights (percentage of shares) held by the family member at the beginning of the year, calculated by the weakest link or sum of the weakest links of percentage of shares held by a given family in all holding chains.

$\%CF_{t-1}$ is the ultimate percentage of cash flow rights (percentage of shares) held by the family member at the beginning of the year, calculated by the product or the sum of the product of shares held by a given family along all chains.

DIV_{t-1} *is* the industry-year adjusted divergence between control and rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL)*. In the case of widely held and non-controlling shareholder firms with no ultimate owner, the value of Divergence is set at 0.

$ZSCORE_{t-1}$ is Z-score from modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firms.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 6

Pearson (Upper Triangle) and Spearman (Lower Triangle) Correlation

	R_CFO_t	R_PROD_t	R_SGA_t	$RM1_t$	$RM2_t$	FAM_{t-1}	DIV_{t-1}	$ZSCORE_{t-1}$	$INSTOWN_{t-1}$	INV_AR_{t-1}	$BIG4_t$	$AUDITTENURE_t$	NOA_{t-1}	$NI\_AVOIDLOSS_t$	ROA_t	$ASSET_t$	MTB_t	$LEVERAGE_t$
N	577	563	*568*	577	564	577	577	577	577	577	577	577	577	577	577	577	577	577
R_CFO_t		0.040	-0.027	**0.998**	0.024	**-0.155**	-0.067	-0.002	0.034	0.037	0.103	**-0.135**	-0.034	0.001	0.054	0.074	0.079	**0.121**
R_PROD_t	-0.008		**0.415**	0.067	**0.947**	-0.027	0.119	**0.179**	-0.006	-0.042	-0.045	0.044	-0.080	-0.056	**0.270**	-0.054	**0.204**	**-0.149**
R_SGA_{it}	-0.074	**0.459**		0.038	**0.685**	-0.035	**0.115**	-0.023	-0.037	-0.012	-0.047	0.047	-0.093	0.053	0.030	-0.039	**0.116**	-0.084
$RM1_{it}$	**0.996**	0.027	-0.008		0.068	**-0.157**	-0.060	-0.004	0.031	0.036	0.100	**-0.132**	-0.040	0.005	0.056	0.072	0.086	**0.116**
$RM2_{it}$	-0.023	**0.945**	**0.685**	0.027		-0.033	**0.139**	**0.134**	-0.018	-0.040	-0.051	0.053	-0.095	-0.024	**0.227**	-0.055	**0.204**	**-0.147**
FAM_{t-1}	**-0.184**	-0.028	-0.030	**-0.190**	-0.046		**0.307**	0.088	-0.092	0.053	0.018	0.058	-0.057	-0.001	0.053	**-0.185**	0.052	0.035
DIV_{t-1}	0.025	0.085	0.067	0.024	0.084	**0.279**		0.005	-0.054	**-0.173**	0.035	0.015	0.021	**-0.111**	0.028	0.093	**0.099**	-0.028
$ZSCORE_{t-1}$	-0.033	**0.148**	0.005	-0.029	**0.107**	-0.013	-0.030		0.002	0.007	-0.047	0.134	**-0.187**	**-0.150**	**0.408**	-0.091	**0.243**	**-0.479**
$INST\_OWN_{t-1}$	0.062	-0.014	-0.062	0.058	-0.030	-0.096	-0.091	0.043		-0.032	-0.052	0.060	-0.043	-0.036	0.011	**0.211**	0.013	0.021
INV_AR_{t-1}	-0.003	-0.071	-0.008	-0.006	-0.053	0.034	**-0.164**	**0.166**	-0.026		0.083	0.100	**-0.169**	0.002	0.003	**-0.231**	-0.084	-0.041
$BIG4_t$	0.103	-0.054	-0.040	0.098	-0.052	0.018	0.017	-0.027	-0.054	0.076		**0.294**	-0.012	0.047	0.068	**0.142**	0.104	**0.171**
$AUDIT\_TENURE_t$	**-0.136**	0.071	0.011	**-0.132**	0.070	0.054	-0.030	**0.210**	0.066	0.054	**0.296**		-0.049	0.105	**0.238**	**0.126**	**0.136**	0.018
NOA_{t-1}	-0.054	-0.087	**-0.111**	-0.063	-0.098	-0.039	-0.007	**-0.248**	-0.066	**-0.299**	0.001	0.004		0.040	**-0.166**	-0.034	**-0.138**	**0.162**
$NI\_AVOIDLOSS_t$	-0.040	-0.064	0.066	-0.038	-0.013	0.000	**-0.112**	**-0.239**	-0.045	0.000	0.020	0.079	**0.114**		-0.088	-0.033	**-0.154**	**0.116**
ROA_t	0.075	**0.322**	0.039	0.079	**0.256**	0.001	0.054	**0.455**	0.016	0.049	**0.063**	**0.209**	**-0.187**	**-0.346**		0.103	**0.328**	**-0.257**
$ASSET_t$	0.102	-0.059	-0.021	0.095	-0.041	**-0.165**	0.077	-0.055	**0.125**	**-0.212**	0.173	**0.135**	-0.022	-0.029	**0.129**		**0.162**	**0.236**
MTB_t	**0.131**	**0.207**	0.094	**0.139**	**0.182**	0.038	0.070	**0.213**	0.053	-0.054	**0.161**	**0.164**	**-0.273**	**-0.287**	**0.462**	**0.160**		0.054
$LEVERAGE_t$	**0.136**	**-0.157**	-0.076	**0.127**	**-0.145**	0.036	-0.005	**-0.599**	0.028	-0.074	**0.159**	-0.043	**0.114**	**0.152**	**-0.290**	**0.231**	0.065	

Bold text indicates significant at the 0.01 level, two tailed test.

Table 7
The Ultimate Family Ownership (FAM)
Absolute Models
Cross-sectional Regression of Absolute value of Real EM on Family Ownership

Dependent Variables	Pred. Sign	H1
		|R_CFO|	***|R_PROD|***	***|R_SGA|***	***|RM1|***	***|RM2|***
Observations		577	563	568	577	564
Intercept		1.3455 ***	0.1014 ***	0.0470 ***	1.3172 ***	0.1585 ***
FAM	**+/-**	**0.1986** *	**0.0082**	**0.0045**	**0.2058** *	**-0.0066**
Real EM costs						
$ZSCORE_{t-1}$	+	0.0382	0.0007	-0.0002	0.0415 *	-0.0012
$INST\_OWN_{t-1}$	-	-0.0185	-0.0105 *	0.0004	-0.0183	-0.0102
$INVT\_AR_{t-1}$	+	0.0355	0.0478 **	0.0022	0.0195	0.0549 *
Accrual EM costs						
$BIG4_t$	+/-	-0.2693 **	-0.0349 ***	-0.0061	-0.2635 **	-0.0477 ***
$AUDIT\_TENURE_t$	+/-	0.1260	-0.0036	0.0079 ***	0.1183	-0.0033
NOA_{t-1}	+/-	0.0404	-0.0186 ***	-0.0040 ***	0.0409	-0.0197 ***
Incentive						
$NI\_AVOIDLOSS_t$	+	-0.7934	-0.0523	0.0533	-1.4457	0.5744
Controls						
ROA_t		-1.9964 ***	0.1309 **	0.0508 **	-1.9245 ***	0.1993 ***
$ASSET_t$		-0.3796 ***	0.0093	-0.0128 ***	-0.3893 ***	-0.0111
MTB_t		-0.0347	0.0099 **	0.0033 *	-0.0429	0.0182 ***
$LEVERAGE_t$		-1.1115 ***	0.0196	-0.0239 **	-1.0386 ***	0.0037
Y1		-0.0205	-0.0059	-0.0117 **	-0.0147	-0.0183
Y2		-0.1505	-0.0104	-0.0104 **	-0.1416	-0.0233 *
Adj.R^2		**12.27%**	**10.22%**	**8.71%**	**12.04%**	**10.58%**

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.

The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \sum_{1}^{k} \alpha_{2,k} Cost\ Real\ EM_{k,i.t} + \sum_{1}^{l} \alpha_{3,l} Cost\ Accrual\ EM_{l,i.t} + \sum_{1}^{m} \alpha_{4,m} Incentive_{m,i.t} + \sum_{1}^{n} \alpha_{5,n} Controls_{n,i.t} + \varepsilon_{i,t}$$

|*R_CFO*| is the absolute value of abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

|*R_PROD*| is the absolute value of abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

|*R_SGA*| is the absolute value of abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

|*RM1*| is the absolute value of the aggregated measure of Real EM through sales and discretionary expense activities calculated by sum of |*R_CFO*| and |*R_SGA*|.

|*RM2*| is the absolute value of the aggregated measure of Real EM through production and discretionary expense activities calculated by sum of |*R_PROD*| and |*R_SGA*|.

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by an individual person or group of family members is equal to or more than 10%, zero otherwise.

$ZSCORE_{t-1}$ is Z-score from modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} +$$

$$1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is a dummy variable equal to one if the firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 8
The Ultimate Family Ownership (FAM)
Sign Models
Cross-sectional Regression of Absolute value of Real EM on Family Ownership

Dependent Variables	Pred. Sign	H1									
		R_CFO		***R_PROD***		***R_SGA***		***RM1***		***RM2***	
Observations		577		563		568		577		564	
Intercept		-0.5144	***	-0.0129		0.0083		-0.5012	**	0.0045	
FAM	**+/-**	**-0.5197**	***	**-0.0130**		**-0.0012**		**-0.5287**	***	**-0.0211**	
Real EM costs											
$ZSCORE_{t-1}$	+/-	0.0427		-0.0012		-0.0043	***	0.0411		-0.0062	**
$INST\_OWN_{t-1}$	+/-	0.0605		-0.0066		-0.0033		0.0562		-0.0140	
$INVT\_AR_{t-1}$	+/-	0.5119		-0.1064	***	-0.0249		0.4874		-0.1341	***
Accrual EM costs											
$BIG4_t$	+/-	0.4057	***	-0.0195		-0.0011		0.3885	***	-0.0346	*
$AUDIT\_TENURE_t$	+/-	-0.4769	***	0.0080		0.0040		-0.4706	***	0.0132	
NOA_{t-1}	+/-	-0.0279		-0.0094	**	-0.0044	***	-0.0321		-0.0154	***
Incentive											
$NI\_AVOIDLOSS_t$	+/-	2.0962		0.1327		0.3738	*	2.6556		1.0530	*
Controls											
ROA_t		1.4733	**	0.5175	***	0.0092	***	1.6377	**	0.5776	***
$ASSET_t$		0.0367		-0.0314	***	-0.0052		0.0236		-0.0311	**
MTB_t		0.0253		0.0244	***	0.0103	***	0.0368		0.0388	***
$LEVERAGE_t$		1.2804	***	-0.0857	**	-0.0566	***	1.2439	***	-0.1639	***
Y1		0.3062	*	-0.0377	**	-0.0143	*	0.2812	*	-0.0608	***
Y2		0.3566	**	0.0043		-0.0051		0.3391	**	0.0011	
Adj.R^2		**8.83%**		**19.67%**		**3.76%**		**8.69%**		**18.34%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \sum_{1}^{k} \alpha_{2,k} Cost\ Real\ EM_{k,i.t} + \sum_{1}^{l} \alpha_{3,l} Cost\ Accrual\ EM_{l,i.t} + \sum_{1}^{m} \alpha_{4,m} Incentive_{m,i.t} + \sum_{1}^{n} \alpha_{5,n} Controls_{n,i.t} + \varepsilon_{i,t}$$

R_CFO is the abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

R_PROD is abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

R_SGA is abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

RM1 is the aggregated measure of Real EM through sales and discretionary expense activities calculated by the sum of *R_CFO* and *R_SGA.*

RM2 is the aggregated measure of Real EM through production and discretionary expense activities calculated by the sum of *R_PROD* and *R_SGA.*

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by an individual person or group of family members is equal to or more than 10%, zero otherwise.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} +$$

$$1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firms.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 9
Sensitivity Test - Subsample
The Ultimate Family Ownership (FAM)
Cross-sectional Regression of Absolute value of R_CFO on Family Ownership

Dependent Variables	Pred. Sign	R_CFO					
		Full Sample		***Negative Residual Upward***		***Positive Residual Downward***	
Observations		577		397		180	
Intercept		-0.5144	**	-1.5004	***	0.7771	***
FAM	+/-	**-0.5197**	***	-0.2189	*	-0.0878	
Real EM costs							
$ZSCORE_{t-1}$	+/-	0.0427		-0.0053		0.0935	**
$INST\_OWN_{t-1}$	+/-	0.0605				0.0422	
$INVT\_AR_{t-1}$	+/-	0.5119		0.4162		0.3345	
Accrual EM costs							
$BIG4_t$	+/-	0.4057	***	0.2263	*	0.0177	
$AUDIT\_TENURE_t$	+/-	-0.4769	***	-0.2149	**	-0.0887	
NOA_{t-1}	+/-	-0.0279		-0.0449		0.0295	
Incentive							
$NI\_AVOIDLOSS_t$	+/-	2.0962		1.9388		-1.7927	
Controls							
ROA_t		1.4733	**	0.9800		-1.4324	
$ASSET_t$		0.0367	***	0.2053	*	-0.5713	***
MTB_t		0.0253		0.1077	**	-0.0013	
$LEVERAGE_t$		1.2804	***	1.5863	***	-0.0503	
Y1		0.3062	*	-0.1021		0.0531	
Y2		0.3566	**	0.2387	*	0.2174	
Adj.R^2		**8.83%**		**12.98%**		**12.59%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \sum_1^k \alpha_{2,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{3,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{4,m} Incentive_{m,i.t} + \sum_1^n \alpha_{5,n} Controls_{n,i.t} + \varepsilon_{i,t}$$

R_CFO is the abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by an individual person or group of family members is equal to or more than 10%, zero otherwise.

$ZSCORE_{t-1}$ is Z-score from modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is a dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firms.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 10
Sensitivity Test - Subsample
The Ultimate Family Ownership (FAM)
Cross-sectional Regression of Absolute value of R_PROD on Family Ownership

Dependent Variables	Pred. Sign	R_PROD				
		Full Sample		***Negative Residual Upward***		***Positive Residual Downward***
Observations		563		291		272
Intercept		-0.0129		-0.0824		0.0645
FAM	+/-	**-0.0130**		**-0.0078**		**0.0032**
Real EM costs						
$ZSCORE_{t-1}$	+/-	-0.0012		0.0005		0.0032
$INST\_OWN_{t-1}$	+/-	-0.0066				-0.0146
$INVT\_AR_{t-1}$	+/-	-0.1064	***	-0.0988	***	0.0456
Accrual EM costs						
$BIG4_t$	+/-	-0.0195		0.0304	**	-0.0272
$AUDIT\_TENURE_t$	+/-	0.0080		-0.0010	*	-0.0007
NOA_{t-1}	+/-	-0.0094	**	0.0047		-0.0201
Incentive						
$NI\_AVOIDLOSS_t$	+/-	0.1327		0.0002		-0.0219
Controls						
ROA_t		0.5175	***	0.1153	**	0.5157
$ASSET_t$		-0.0314	***	-0.0102		-0.0107
MTB_t		0.0244	***	-0.0007		0.0124
$LEVERAGE_t$		-0.0857	**	-0.0723	**	0.0113
Y1		-0.0377	**	-0.0181		-0.0295
Y2		0.0043		-0.0045		-0.0102
Adj.R²		**19.67%**		**7.32%**		**23.50%**

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 FAM * COMP\_H_{i,t} + \alpha_3 FAM * COMP\_L_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} Incentive_{m,i.t} + \sum_1^n \alpha_{7,n} Controls_{n,i.t} + \varepsilon_{i,t}$$

R_PROD is abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by an individual person or group of family members is equal to or more than 10%, zero otherwise.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} +$$

$$1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 11
Sensitivity Test - Subsample
The Ultimate Family Ownership (FAM)
Cross-sectional Regression of Absolute value of R_SGA on Family Ownership

Dependent Variables	Pred. Sign	R_SGA					
		Full Sample		***Negative Residual Upward***		***Positive Residual Downward***	
Observations		568		336		232	
Intercept		0.0083		-0.0417	***	0.0519	***
FAM	+/-	**-0.0012**		**-0.0045**		**0.0048**	
Real EM costs							
$ZSCORE_{t-1}$	+/-	-0.0043	***	-0.0007		-0.0043	**
$INST\_OWN_{t-1}$	+/-	-0.0033		-0.0005			
$INVT\_AR_{t-1}$	+/-	-0.0249		-0.0074		-0.0215	
Accrual EM costs							
$BIG4_t$	+/-	-0.0011		0.0091	*	0.0020	
$AUDIT\_TENURE_t$	+/-	0.0040		-0.0046		0.0190	***
NOA_{t-1}	+/-	-0.0044	***	0.0020		-0.0054	*
Incentive							
$NI\_AVOIDLOSS_t$	+/-	0.3738	*	0.0724		0.0152	
Controls							
ROA_t		0.0092	***	-0.0384		0.0810	*
$ASSET_t$		-0.0052		0.0073	*	-0.0240	***
MTB_t		0.0103	***	0.0020		0.0055	*
$LEVERAGE_t$		-0.0566	***	0.0029		-0.0511	**
Y1		-0.0143	*	-0.0005		-0.0252	***
Y2		-0.0051		0.0007		-0.0158	*
Adj.R^2		**3.76%**		**2.90%**		**10.75%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 FAM * DIV_{i,t} + \sum_1^k \alpha_{3,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{4,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{5,m} Incentive_{m,i.t} + \sum_1^n \alpha_{6,n} Controls_{n,i.t} + \varepsilon_{i,t}$$

R_SGA is the abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by individual person or group of family members is equal to or more than 10%, zero otherwise.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} +$$

$$1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 12
Sensitivity Test – Pyramidal Structure
The Ultimate Family Ownership (FAM)
Cross-sectional Regression of Absolute value of Real EM on Family Ownership

Dependent Variables	**Pred. Sign**	***R_CFO***		***R_PROD***		***R_SGA***	
Observations		577		563		568	
Intercept		-0.5036	**	-0.0204		-0.0012	
FAM	+/-	**-0.3549**	**	**-0.0151**		**-0.0012**	
PY	+/-	**-0.0223**		**0.0259**		**-0.0081**	
FAM*PY	+/-	**-0.2815**		**-0.0110**		**0.0103**	
Real EM costs							
$ZSCORE_{t-1}$	+/-	0.0423		-0.0012		-0.0048	***
$INST\_OWN_{t-1}$	+/-	0.0560		-0.0041		-0.0035	
$INVT\_AR_{t-1}$	+/-	0.4101		-0.1006	***	-0.0230	
Accrual EM costs							
$BIG4_t$	+/-	0.3932	***	-0.0173		-0.0012	
$AUDIT\_TENURE_t$	+/-	-0.4838	***	0.0095		0.0042	
NOA_{t-1}	+/-	-0.0264		-0.0086	**	-0.0044	**
Incentive							
$NI\_AVOIDLOSS_t$	+/-	2.0302		0.1662		0.2540	
Controls							
ROA_t		1.5964	**	0.5144	***	0.0245	
$ASSET_t$		0.0581		-0.0383	***	-0.0048	
MTB_t		0.0263		0.0248	***	0.0116	***
$LEVERAGE_t$		1.2755	***	-0.0892	***	-0.0606	***
Y1		0.3035	**	-0.0406	***	-0.0158	**
Y2		0.3564	**	0.0042		-0.0039	
Adj.R^2		**9.27%**		**20.25%**		**4.50%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 PY_{i,t} + \alpha_3 FAM * PY_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} Incentive_{m,i.t} + \sum_1^n \alpha_{7,n} Controls_{n,i.t} + \varepsilon_{i,t}$$

R_CFO is the abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

R_PROD is abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

R_SGA is abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by individual person or group of family members is equal to or more than 10%, zero otherwise.

PY is a dummy variable equal to 1 if the holding structure at the beginning of the year is pyramidal, zero otherwise.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 13
*Cash flow-Control Rights Divergence of Family Ownership (FAM*DIV)*
Absolute Models
Cross-sectional Regression of Absolute value of Real EM on Cash flow-Control Rights Divergence of Family Ownership

		H2									
Dependent Variables	**Pred. Sign**	***|R_CFO|***		***|R_PROD|***		***|R_SGA|***		***|RM1|***		***|RM2|***	
Observations		577		563		568		577		564	
Intercept		1.2616	***	0.0963	***	0.0408	***	1.3703	***	0.1397	***
FAM	**+/-**	**0.2725**	**	**0.0088**		**0.0093**	*	**0.0785**		**-0.0003**	
DIV	**+**	**-0.7961**		**-0.0368**		**-0.0507**	**	**-1.0524**	*	**-0.1232**	**
FAM*DIV	**+**	**0.9604**	*	**0.0742**		**0.0812**	***	**1.3172**	**	**0.1810**	***
Real EM costs											
$ZSCORE_{t-1}$	+	0.0393	*	0.0012		-0.0002		0.0461	*	-0.0004	
$INST\_OWN_{t-1}$	-	-0.0283		-0.0105	*	-0.0008		-0.0259		-0.0115	
$INVT\_AR_{t-1}$	+	0.0373		0.0542	**	0.0089		0.0355		0.0612	**
Accrual EM costs											
$BIG4_t$	+/-	-0.2697	**	-0.0348	***	-0.0085	*	-0.2692	**	-0.0473	***
$AUDIT\_TENURE_t$	+/-	0.1210		-0.0055		0.0093	***	0.1088		-0.0024	
NOA_{t-1}	+/-	0.0360		-0.0192	***	-0.0044	***	0.0365		-0.0204	***
Incentive											
$NI\_AVOIDLOSS_t$	+	-1.1033		-0.0579		0.0218		-1.6146		0.4860	
Controls											
ROA_t		-1.7724	***	0.1430	***	0.0522	**	-1.7413	***	0.2146	***
$ASSET_t$		-0.3716	***	0.0072		-0.0120	***	-0.3773	***	-0.0132	
MTB_t		-0.0485		0.0081	*	0.0034	*	-0.0561		0.0160	***
$LEVERAGE_t$		-1.0888	***	0.0377		-0.0261	**	-0.0978	***	0.0234	
Y1		-0.0147		-0.0049		-0.0124	**	-0.0094		-0.0168	
Y2		-0.1528		-0.0102		-0.0105	*	-0.1466		-0.0200	
Adj.R^2		**12.53%**		**10.93%**		**11.80%**		**12.48%**		**11.75%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 DIV_{i,t} + \alpha_3 FAM * DIV_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} \text{Incentive}_{m,i.t} + \sum_1^n \alpha_{7,n} \text{Controls}_{n,i.t} + \varepsilon_{i,t}$$

|*R_CFO*| is the absolute value of abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

|*R_PROD*| is the absolute value of abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

|*R_SGA*| is the absolute value of abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

|*RM1*| is the absolute value of the aggregated measure of Real EM through sales and discretionary expense activities calculated by the sum of |*R_CFO*| and |*R_SGA*|.

|*RM2*| is the absolute value of the aggregated measure of Real EM through production and discretionary expense activities calculated by the sum of |*R_PROD*| and |*R_SGA*|.

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by individual person or group of family members is equal to or more than 10%, zero otherwise.

DIV is the industry-year adjusted divergence between control and rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL)*.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11th interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 14
*Cash flow-Control Rights Divergence of Family Ownership (FAM*DIV)*
Sign Models
Cross-sectional Regression of Absolute value of Real EM on Cash flow-Control Rights Divergence of Family Ownership

Dependent Variables	Pred. Sign	H2								
		R_CFO		***R_PROD***		***R_SGA***		***RM1***		***RM2***	
Observations		577		563		568		577		564	
Intercept		-0.4191	*	0.0101		0.0107		-0.4034	*	-0.0024	
FAM	**+/-**	**-0.0634**	***	**-0.0260**	*	**-0.0048**		**-0.6420**	***	**-0.0294**	
DIV	**+/-**	**1.0286**	*	**0.0734**		**-0.0042**		**0.9770**		**0.0046**	
FAM*DIV	**+/-**	**-1.2132**	*	**-0.0087**		**0.0369**		**-1.0993**	*	**0.0769**	
Real EM costs											
$ZSCORE_{t-1}$	+/-	0.0491	*	-0.0005		-0.0043	***	0.0440		-0.0050	*
$INST\_OWN_{t-1}$	+/-	0.0732		-0.0035		-0.0032		0.0683		-0.0139	
$INVT\_AR_{t-1}$	+/-	0.4800		-0.0900	***	-0.0178		0.4757		-0.0957	**
Accrual EM costs											
$BIG4_t$	+/-	0.4183	***	-0.0183		-0.0019		0.4028	***	-0.0363	**
$AUDIT\_TENURE_t$	+/-	-0.4788	***	0.0089		0.0029		-0.4683	***	0.0141	
NOA_{t-1}	+/-	-0.0222		-0.0090	**	-0.0048	**	-0.0284		-0.0167	***
Incentive											
$NI\_AVOIDLOSS_t$	+/-	2.6685		0.2890		0.3857	*	3.2202		1.3187	**
Controls											
ROA_t		1.5447	**	0.5170	***	0.0326		1.5401	**	0.5645	***
$ASSET_t$		0.0198		-0.0392	***	-0.0077		0.0088		-0.0313	**
MTB_t		0.0321		0.0237	***	0.0110	***	0.0450		0.0400	***
$LEVERAGE_t$		1.3040	***	-0.0778	**	-0.0574	***	1.2452	***	-1.5573	***
Y1		0.2919		-0.0399	***	-0.0155	*	0.2720	*	-0.0559	***
Y2		0.3462	**	0.0044		-0.0047		0.3327	**	-0.0009	
Adj.R^2		**9.28%**		**21.28%**		**5.82%**		**8.89%**		**20.11%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 DIV_{i,t} + \alpha_3 FAM * DIV_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} \text{Incentive}_{m,i.t} + \sum_1^n \alpha_{7,n} \text{Controls}_{n,i.t} + \varepsilon_{i,t}$$

R_CFO is the abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

R_PROD is abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

R_SGA is the abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

RM1 is the aggregated measure of Real EM through sales and discretionary expense activities calculated by the sum of *R_CFO* and *R_SGA*.

RM2 is the aggregated measure of Real EM through production and discretionary expense activities calculated by the sum of *R_PROD* and *R_SGA*.

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by individual person or group of family members is equal to or more than 10%, zero otherwise.

DIV_{t-1} *is* the industry-year adjusted divergence between control and rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL)*.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11th interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 15
Sensitivity Test - Subsample
*Cash flow-Control Rights Divergence of Family Ownership (FAM*DIV)*
Cross-sectional Regression of R_CFO on Cash flow-Control Rights Divergence of Family Ownership

Dependent Variables	Pred. Sign	R_CFO					
		Full Sample		***Negative Residual Upward***		***Positive Residual Downward***	
Observations		577		397		180	
Intercept		-0.4191	*	-1.3343	***	0.8276	***
FAM	+/-	**-0.0634**	****	**-0.3742**	**	**-0.0448**	
DIV	+/-	**1.0286**	*	**1.5089**	**	**0.1208**	
FAM*DIV	+/-	**-1.2132**	*	**-1.7977**	***	**-0.5666**	
Real EM costs							
$ZSCORE_{t-1}$	+/-	0.0491	*	0.0085		0.0896	**
$INST\_OWN_{t-1}$	+/-	0.0732				0.0445	
$INVT\_AR_{t-1}$	+/-	0.4800		0.3904		0.2569	
Accrual EM costs							
$BIG4_t$	+/-	0.4183	***	0.2380	*	0.0406	
$AUDIT\_TENURE_t$	+/-	-0.4788	***	-0.2071	**	-0.1083	
NOA_{t-1}	+/-	-0.0222		-0.0403		0.0386	
Incentive							
$NI\_AVOIDLOSS_t$	+/-	2.6685		2.7856		-2.5028	
Controls							
ROA_t		1.5447	**	0.8492		-1.5138	
$ASSET_t$		0.0198		0.1945	*	-0.5636	***
MTB_t		0.0321		0.1316	**	-0.0004	
$LEVERAGE_t$		1.3040	***	1.4962	***	-0.0392	
Y1		0.2919		-1.0791		0.0462	
Y2		0.3462	**	0.2252		0.2180	
Adj.R^2		**9.28%**		**14.25%**		**12.47%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 DIV_{i,t} + \alpha_3 FAM * DIV_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} \text{Incentive}_{m,i.t} + \sum_1^n \alpha_{7,n} \text{Controls}_{n,i.t} + \varepsilon_{i,t}$$

R_CFO is the abnormal cash flow from operations calculated by subtracting the normal level of CFO (obtained from the regression in Eq. 1) from the actual CFO (the residual value of CFO).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by an individual person or group of family members is equal to or more than 10%, zero otherwise.

DIV is the industry-year adjusted divergence between control and rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL)*.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} +$$

$$1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 16
Sensitivity Test - Subsample
*Cash flow-Control Rights Divergence of Family Ownership (FAM*DIV)*
Cross-sectional Regression of R_PROD on Cash flow-Control Rights Divergence of Family Ownership

Dependent Variables	Pred. Sign	R_PROD					
		Full Sample		Negative Residual Upward		Positive Residual Downward	
Observations		563		291		272	
Intercept		0.0101		-0.0774	***	0.0552	**
FAM	+/-	**-0.0260**	*	**-0.0126**		**-0.0057**	
DIV	+/-	**0.0734**		**0.0410**		**0.0145**	
FAM*DIV	+/-	**-0.0087**		**-0.0508**		**0.0635**	
Real EM costs							
$ZSCORE_{t-1}$	+/-	-0.0005		0.0004		0.0039	*
$INST\_OWN_{t-1}$	+/-	-0.0035		0.0018		-0.0130	
$INVT\_AR_{t-1}$	+/-	-0.0900	***	-0.1008	***	0.0650	*
Accrual EM costs							
$BIG4_t$	+/-	-0.0183		0.0313	**	-0.0242	*
$AUDIT\_TENURE_t$	+/-	0.0089		-0.0013		0.0005	
NOA_{t-1}	+/-	-0.0090	**	0.0050		-0.0206	***
Incentive							
$NI\_AVOIDLOSS_t$	+/-	0.2890		-0.0246		0.0384	
Controls							
ROA_t		0.5170	***	0.1152	**	0.5419	***
$ASSET_t$		-0.0392	***	-0.0104		-0.0156	
MTB_t		0.0237	***	-0.0003		0.0115	**
$LEVERAGE_t$		-0.0778	**	-0.0728	**	0.0279	
Y1		-0.0399	***	-0.0168		-0.0314	**
Y2		0.0044		-0.0036		-0.0110	
Adj.R^2		**21.28%**		**6.52%**		**27.34%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 DIV_{i,t} + \alpha_3 FAM * DIV_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} \text{Incentive}_{m,i.t} + \sum_1^n \alpha_{7,n} \text{Controls}_{n,i.t} + \varepsilon_{i,t}$$

R_PROD is abnormal production costs calculated by subtracting the normal level of production costs (obtained from the regression in Eq. 2) from the actual production costs (the residual value of production costs) multiplied by -1.

$$\frac{PROD_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it} \qquad (2)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by individual person or group of family members is equal to or more than 10%, zero otherwise.

DIV is the industry-adjusted divergence between control and rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL)*.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} + 1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total assets.

Table 17
Sensitivity Test - Subsample
*Cash flow-Control Rights Divergence of Family Ownership (FAM*DIV)*
Cross-sectional Regression of R_SAG on Cash flow-Control Rights Divergence of Family Ownership

Dependent Variables	Pred. Sign	R_SGA					
		Full Sample		***Negative Residual Upward***		***Positive Residual Downward***	
Observations		568		336		232	
Intercept		0.0107		-0.0349	***	0.0442	***
FAM	+/-	**-0.0048**		**-0.0102**	*	**0.0057**	
DIV		**-0.0042**		**0.0473**	**	**-0.0501**	
FAM*DIV		**0.0369**		**-0.0539**	**	**0.0950**	*
Real EM costs							
$ZSCORE_{t-1}$	+/-	-0.0043	***	-0.0007		-0.0047	**
$INST\_OWN_{t-1}$	+/-	-0.0032		0.0003			
$INVT\_AR_{t-1}$	+/-	-0.0178		-0.0070		-0.0134	
Accrual EM costs							
$BIG4_t$	+/-	-0.0019		0.0094	*	0.0026	***
$AUDIT\_TENURE_t$	+/-	0.0029		-0.0058		0.0182	*
NOA_{t-1}	+/-	-0.0048	**	0.0022		-0.0056	
Incentive							
$NI\_AVOIDLOSS_t$	+/-	0.3857	*	0.1037		-0.0088	
Controls							
ROA_t		0.0326		-0.0339		0.1132	*
$ASSET_t$		-0.0077		0.0057		-0.0254	***
MTB_t		0.0110	***	0.0024		0.0060	*
$LEVERAGE_t$		-0.0574	***	0.0052		-0.0428	*
Y1		-0.0155	*	-0.0011		-0.0228	**
Y2		-0.0047		-0.0001		-0.0117	
Adj.R^2		**5.82%**		**3.72%**		**15.08%**	

*/**/*** Represents significant at the 0.10, 0.05, and 0.01 levels, respectively.
The following regression is estimated for the sample period 2008-2010 using cross-sectional data.

$$RM_{i,t} = \alpha_0 + \alpha_1 FAM_{i,t} + \alpha_2 DIV_{i,t} + \alpha_3 FAM * DIV_{i,t} + \sum_1^k \alpha_{4,k} Cost\ Real\ EM_{k,i.t} + \sum_1^l \alpha_{5,l} Cost\ Accrual\ EM_{l,i.t} + \sum_1^m \alpha_{6,m} \text{Incentive}_{m,i.t} + \sum_1^n \alpha_{7,n} \text{Controls}_{n,i.t} + \varepsilon_{i,t}$$

R_SGA is abnormal discretionary expenses calculated by subtracting the normal level of the sum of advertising, R&D, and SG&A expenses (obtained from the regression in Eq.3) from the actual level of such expenses (the residual value of discretionary expenses).

$$\frac{SGA_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (3)$$

FAM is a dummy variable equal to 1 if the ultimate control rights (percentage of shares) at the beginning of the year held by individual person or group of family members is equal to or more than 10%, zero otherwise.

DIV is the industry-adjusted divergence between control and rights calculated by 1 minus the ultimate cash flow rights *(%CF)* divided by the ultimate control rights *(%CONTROL)*.

$ZSCORE_{t-1}$ is Z-score from a modified version of Altman's Z-score (Altman 1968, 2000) as shown in the following regression.

$$ZSCORE_t = 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sals_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} +$$

$$1.2\frac{Working\ Caspital_t}{Asset_t} + 0.6\frac{Stock\ Price * Shares\ Outstanding_t}{Total\ Liabilities_t}$$

$INST\_OWN_{t-1}$ is the percentage of institutional ownership at the beginning of the year.

INV_AR_{t-1} is the sum of industry-year adjusted inventories and receivables as a percentage of total assets.

$BIG4_t$ is Dummy variable equal to one if firm has a Big 4 auditor, zero otherwise.

$AUDIT\_TENURE_t$ is the natural logarithm of the number of years the auditor has audited the firm.

NOA_{t-1} is the industry-year adjusted net operating assets calculated as the sum of shareholders' equity less cash and marketable securities and plus total debt at the beginning of the year, deflated by total sales for the previous year.

$NI\_AVOIDLOSS_t$ is $AVOIDLOSS_t$ interacting with net income scaled by lagged assets, $AVOIDLOSS_t$ is a dummy variable equal to 1 if net income scaled by lagged assets is in the 11^{th} interval (just right of zero or 0 to +0.0505) of the earnings interval histogram, zero otherwise.

ROA_t is return on assets: income before extraordinary items divided by beginning of period total assets.

$ASSET_t$ is the industry-year adjusted log value of total assets.

MTB_t is market-to-book ratio.

$LEVERAGE_t$ is the sum of short-term and long-term debt divided by average total asset

BIOGRAPHY

Mena Phattarawig received her Bachelor's degree in business administration, majoring in accounting, with Second Class Honors from Thammasat University in 1998. She received her master's degree in accounting from Thammasat University in 2001.

She had 2 years experience with Ernst and Young in the audit and advisory profession. She had 10 years experience with Sakura Industry Co., ltd. as the managing director.

Currently, she is a candidate for a Doctor of Philosophy degree from Chulalongkorn University with a major in accounting.