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ACCOUNTING CONSERVATISM AND FUTURE INVESTMENT OPPORTUNITIES

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ศิรดา   นวลประดิษฐ์   :   ความระมัดระวังทางบัญชีและโอกาสของการลงทุนในอนาคต (ACCOUNTING CONSERVATISM AND FUTURE INVESTMENT OPPORTUNITIES) อ.ที่ปรึกษา วิทยานิพนธ์หลัก: ผศ. ดร.เกรียงไกร บุญเลิศอุทัย, 166 หน้า.

งานวิจัยนี้ศึกษาความสัมพันธ์ระหว่างความระมัดระวังทางบัญชีหรือการรับรู้ขาดทุนเชิงเศรษฐกิจอย่างทันเวลาและโอกาสการลงทุนในอนาคตของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยในช่วงระยะเวลา พ.ศ. 2548 ถึง พ.ศ. 2554 และศึกษาบทบาทการเป็นสื่อความสัมพันธ์ดังกล่าวของต้นทุนส่วนทุนโดยนัยของกิจการ

หลักความระมัดระวังทางบัญชีซึ่งเป็นกลไกที่มีประสิทธิภาพของการทำสัญญาและการกำกับดูแลกิจการให้ประโยชน์ต่อตลาดหนี้ อย่างไรก็ตามการศึกษาประโยชน์ของความระมัดระวังทางบัญชีต่อตลาดทุนยังมีน้อยและไม่ชัดเจนในตลาดทุนที่เกิดใหม่เช่นตลาดทุนไทย ซึ่งมีการไหลเวียนอย่างมากของเงินทุนต่างชาติเพื่อการขยายการลงทุนของกิจการ แต่การเติบโตของกิจการถูกจำกัดด้วยปัญหาตัวแทน การรับรู้ขาดทุนเชิงเศรษฐกิจอย่างทันเวลาสามารถบรรเทาปัญหาดังกล่าวได้โดยการลดความสามารถของผู้บริหารในการชะลอรับรู้ขาดทุน และในการเร่งรับรู้กำไรที่ยังไม่ได้ตรวจสอบเพื่อถ่ายโอนความมั่งคั่งจากผู้ถือหุ้นมาเป็นของตน งานวิจัยตั้งสมมุติฐานว่าความสัมพันธ์ระหว่างความระมัดระวังทางบัญชีและโอกาสการลงทุนมีทิศทางเดียวกัน และต้นทุนส่วนทุนโดยนัยที่ต่ำเป็นตัวแปรสื่อกลางของความสัมพันธ์ดังกล่าว

ผลงานวิจัยพบว่า บริษัทที่มีความระมัดระวังทางบัญชีมากจะมีโอกาสการลงทุนในอนาคตสูง เมื่อพิจารณาถึงระดับความไม่เท่าเทียมกันของข้อมูลและใช้ตัววัดโอกาสการลงทุนที่มาจากรายจ่ายฝ่ายทุนที่เกิดขึ้นจริง พบว่า ความระมัดระวังทางบัญชียังคงมีความสัมพันธ์ในทิศทางเดียวกันกับโอกาสการลงทุน งานวิจัยไม่พบบทบาทการเป็นสื่อกลางของต้นทุนส่วนทุนโดยนัยและบทบาทการเป็นตัวปรับของระดับความไม่เท่าเทียมกันของข้อมูลต่อความสัมพันธ์ดังกล่าว ทั้งนี้งานวิจัยพบว่าบริษัทซึ่งมีต้นทุนส่วนทุนโดยนัยในระดับต่ำจะมีโอกาสการลงทุนที่สูงกว่าบริษัทซึ่งมีต้นทุนส่วนทุนโดยนัยในระดับสูง โดยภาพรวมความระมัดระวังทางบัญชีโดยการรับรู้ขาดทุนเชิงเศรษฐกิจอย่างทันเวลาให้ประโยชน์แก่โอกาสการลงทุนในอนาคตของกิจการ

ภาควิชา   การบัญชี   ลายมือชื่อนิสิต _____

สาขาวิชา   การบัญชี   ลายมือชื่อ อ.ที่ปรึกษาหลัก _____

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KEYWORDS: FUTURE INVESTMENT OPPORTUNITIES / GROWTH OPPORTUNITIES / IMPLIED COST OF EQUITY CAPITAL / ACCOUNTING CONSERVATISM / TIMELIER LOSS RECOGNITION

SIRADA NUANPRADIT: ACCOUNTING CONSERVATISM AND FUTURE INVESTMENT OPPORTUNITIES. ADVISOR: ASST. PROF. KRIENGKRAI BOONLERT-U-THAI, Ph.D., 166 pp.

This research investigates the relationships between accounting conservatism, captured using the timelier recognition of economic losses and future investment opportunities, and the mediating role of the implied costs of equity capital on those relationships of Thai listed firms during the period of 2005-2011.

Conservatism benefits debt markets as an efficient mechanism of contracting and governance. Its usefulness to equity markets is however little explored and thus remains ambiguous, especially in the emerging market of Thailand where high foreign fund flows reflect the increasing need of external equity for business expansion, while corporate growth is severely restricted by agency problems. The timelier loss recognition can mitigate those problems by constraining managers' ability to withhold losses and accelerate the recognition of unverified gains to appropriate outside shareholders' wealth. This study hypothesizes the positive associations between conservatism and investment opportunities, and those positive associations are mediated by lower implied costs of equity capital.

This research study finds that firms with a higher (lower) degree of accounting conservatism are more (less) likely to have higher future investment opportunities. The results hold after controlling for information asymmetry and using a realized proxy of investment opportunities. Nevertheless, no evidence of the mediating role of the implied costs of equity capital and the moderating role of information asymmetry is discovered. The results also indicate that firms with lower (higher) implied costs of equity capital are more (less) likely to enjoy future investment opportunities. Overall, the research provides evidence to verify that accounting conservatism through the timelier loss recognition by Thai firms benefits future investment opportunities.

Department:	Accountancy	Student's Signature _____
Field of Study:	Accountancy	Advisor's Signature _____
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CHAPTER 1

INTRODUCTION

As a matter of fact, the value of a firm consists of the values from assets-in-place and future investment opportunities or growth opportunities, the latter of which account for a significant portion of the firm's market value and also play a significant role in determining corporate policies as reported in corporate finance literature (e.g. Myers (1977); Smith and Watts (1992); Skinner (1993); Baber, Janakiraman, and Kang (1996); Gul (1999)). For instance, in an industry with high demand volatility, future investment opportunities account for approximately 70-80 percent of the firm's value (Kester (1986)). In addition, investors mainly focus on the value of growth opportunities when making a price assessment of an initial public offering (Chung, Li, and Yu (2005)). Therefore, outside investors seek firm-specific information, e.g. accounting numbers, which enables them to estimate the value of growth opportunities.

Emerging firms or markets with high growth opportunities possibly encounter severe agency problems in which both managers and inside investors with respect to outside investors have more private information. Hossian, Ahmed, and Godfrey (2005) note that high growth firms need external capital to fuel their growth and the owners

of equity capital also need information to assess equity risks. While managers more

likely withhold loss information and expropriate outside investors' wealth until the

loss information accumulates up to a certain threshold and can no longer be

withheld. Managers will release this loss information or bad news and hence stock

price crashes (Kothari, Shu, and Wysocki (2009a)). Accounting conservatism with

timeliness and asymmetric verification lessens the expropriation by the managers of

the investors' wealth and provides risk protection to the outside investors. Thus, the

investors' risk premiums about information uncertainty are reduced as loss

information (bad news) is timely reported (Guay and Verrecchia (2007)). The investors

then reward the firms practicing conservatism with demand for the lower risk

premiums (lower costs of equity capital), thereby increasing the firms' growth

opportunities. As the firm valuation being the decreasing function of the costs of

capital, the lower risk premiums as a result of conservatism practices enable the

investors to estimate positive future cash flows accurately (Johnson (1999); AlNajja

and Riahi-Belkaoui (2001)).

        According to R. L. Watts (2003a), accounting conservatism is an efficient

mechanism of contracting and governance for a firm with asymmetric information,

asymmetric payoffs, limited horizons, and limited liability. In this dissertation,

conservatism is interpreted as the timelier recognition of unrealized losses vis-à-vis

unrealized gains in financial reports since managers have to use the higher degree of the verification for good news (gains) with respect to bad news (losses). In general, the managers have a tendency to withhold the recognition of bad news or losses due to their career concerns at present and over a long horizon. Rather, the managers favor the upward earnings bias to produce large payments under an earnings-based compensation plan and possibly allow negative NPV investment by the firm. Empirical research and existing theory suggest that conservative practices by which economic losses vis-à-vis economic gains are reported in a more timely fashion can address agency problems by reducing opportunistic behaviors of the managers and providing risk information to uninformed investors, hence increasing firms' value and their equity value (R. L. Watts (2003a); R. L. Watts (2003b); LaFond and Watts (2008)).
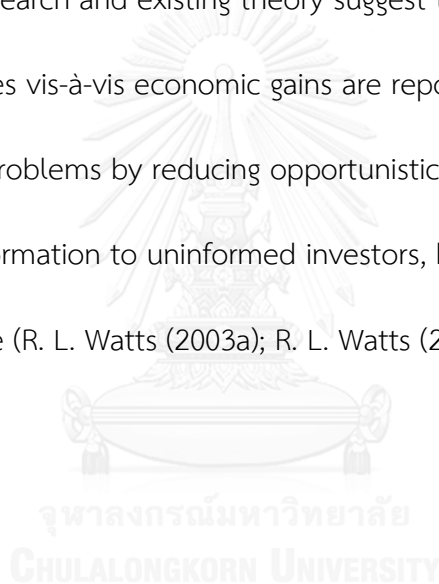
The objectives of this dissertation are to examine whether accounting conservatism[1], i.e. the timelier recognition of economic losses (bad news) in reported earnings, enhances Thai firms' future investment opportunities or growth opportunities. In addition, it is to examine whether the relationship between

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[1] I use conservatism, accounting conservatism, the timelier recognition of economic losses, the timely loss recognition, or conditional conservatism interchangeably throughout this study.

accounting conservatism and future investment opportunities is indirect or mediated

by the implied costs of equity capital.

This dissertation has been motivated by three facts. First, most extant

literatures focus on the implications of conservative reporting for debt markets as

firm contracts, e.g. debt contracts, drive demand for accounting conservatism (e.g.

Ahmed, Billings, Morton, and Standford-Harris (2002); Zhang (2008); Beatty, Weber,

and Yu (2008); Wittenberg-Moerman (2008)). However, there is less evidence on the

benefits of conservatism to equity markets, particularly in Asian emerging markets

with low investor protection, in which external equity providers require reliable and

timely financial information for their risk protection. To my best knowledge, there

exists no empirical evidence of the effect of accounting conservatism on future

investment opportunities. This study thus aims to fill this void by providing empirical

evidence of the benefits of accounting conservatism to firms' future investment

opportunities in Thailand.

Second, growth opportunities are more essential for emerging markets than

for developed markets as the emerging markets with adopted market-oriented

policies need foreign capital to increase their growth and investment expansion

(Standford (2002)). In addition, growth opportunities are important for firms with

initial public offering as investors equate one dollar of growth opportunities to three

quarters of firms' assets-in-place when determining initial public offering prices

(Chung et al. (2005)).

Therefore, Thailand offers interesting contrasts to the developed markets and

other emerging markets as an environment to study future investment

opportunities[2]. First, among emerging markets Thailand was the first emerging

economy affected by an economic downturn in 1997 due to discontinuity of the

fixed exchange rate as a result of aggressive financing practices and poor investment

decisions (Connelly, Limpaphayom, and Nagarajan (2012)). Thailand was the most

seriously affected economy with sharp economic recession and dislocation of the

financial sectors (Standford (2002)). Consequently, the financial crisis substantially

limits firms' borrowing capacity and imposes tight restriction on new investment

projects and growth opportunities. Second, firms' growth opportunities are likely

restricted by the severity of agency problem between controlling (insiders) and

outside investors (Gorkittisunthorn, Jumreornvong, and Limpaphayom (2006)).

Wiwattanakantang (2001) notes that approximately 80 percent of non-financial firms

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[2] Purfield, Oura, Kramer, and Jobst (2006) reported that the Asian emerging markets are sizable and fast growing with greater market breadth (the percentage of market capitalization and share turnover of the ten largest listed firms) than in other emerging markets (e.g. Brazil, Chile, Mexico, South Africa). Stock markets in Asia are a significant source of corporate finance although finance remains bank-dominated. Firms in emerging Asia tapped equity markets for some $814 billion in new capital through IPO and SEO in 2005 (Purfield et al. (2006)).

on the Stock Exchange of Thailand is family-owned. Those firms are less likely to demand for accounting transparency and timely public disclosure since family-controlled firms prefer internal fund and bank loans over public equity to protect losing of control over the business (Rahman, Yammeesri, and Perera (2010)). Then, less transparency and timely loss reports induce equity risk to outside shareholders and hence higher cost of equity capital and lower future investment.

Last, this dissertation had been motivated by prior studies that report an improvement in the levels of conservatism (as measured by the sensitivity earnings to losses) and the timeliness of earnings reporting (as measured by explanatory power of the Basu model) of Thai firms after the 1997 Asian financial crisis (Herrmann, Pornupatham, and Vichitsarawong (2008); Vichitsarawong, Eng, and Meek (2010)). This fact reflects increases in demand of participants in the firms' contracts for quality financial reporting with timeliness and asymmetric verifiability to recover the financial failures and growth. On the one hand, Ekkayokkaya and Pengniti (2012) note that governance reform in Thailand aimed at improving investor protection and recovering capital market failure after the financial crisis is applicable but its efficacy is limited due to interventions in securities regulations by the private interests of business-owner politicians. Thus, increases in conservatism and timeliness of earnings

for Thai firms are likely to complement or substitute for inefficient corporate governance and enable the firms and the capital market' growth opportunities.

This study argues that the application of timely loss recognition constrains managers' ability to withhold loss information which can later adversely affect uninformed shareholders; and to accelerate the realization of unverified gains to appropriate the shareholders' wealth. For instance, impairment accounting for long-term and intangible assets will limit opportunistic behavior of the managers who withhold unrealized losses on those assets to upward earnings in a particular period. Under corporate governance, timely loss recognition also helps managers identify the existence of negative NPV projects and adopt corrective actions to terminate the projects. For example, severe decreases in market prices of inventories (e.g. finished goods, raw materials) signal the managers to investigate losses and take appropriate actions involving with marketing strategy, production process. In addition, timely loss recognition mitigates the situation in which the managers forgo positive NPV projects with short-term negative earnings as the projects' payoffs will be realized long after the managers' retirement.

Therefore, when agency problems (e.g. managerially dysfunctional behaviors) are lessened and unfavorable projects are carefully investigated by conservatism,

firms' growth opportunities are more likely to increase. This study hypothesizes, *ceteris paribus*, that accounting conservatism positively affects future investment opportunities (H1).

Investors generally bear high risks in equity losses if firms' bad news accumulates up to a threshold. Thus, for those firms, the investors require a higher risk premium to protect equity losses, which subsequently decreases firms' investment opportunities. When the firms' bad news are timely reported (not accumulated), the possibility of stock price crash is low. Thus, investors with protected loss risks will reward those firms by requiring the lower risk premium (lower costs of equity). Such the lower costs of equity capital enable the firms to expand business and invest capital expenditures.

This study further argues that the positive relationship between accounting conservatism and future investment opportunities can be explained by the costs of equity capital as the mediator. The mediating role of the implied equity cost is based on two arguments. First, uninformed investors require a lower risk premium to compensate for firms that provide timely loss information. Second, a lower cost of equity capital as a discount rate on expected future cash flows increases firms' ability to invest in more positive NPV projects. Therefore, this study hypothesizes,

ceteris paribus, that accounting conservatism negatively affects the implied equity

cost (H2.1), and the implied equity cost negatively affects future investment

opportunities (H2.2).

      The sample firms are listed firms in the Stock Exchange of Thailand (SET) of

2005-2011. The relative sensitivity of earnings to bad news vis-à-vis to good news

derived from a rolling Basu regression on an eight-year window backward is used to

capture the degree of accounting conservatism. Multiple measures, i.e. four individual

measures and the aggregated measures, of unobservable future investment

opportunities are employed to strengthen the results. This study addresses the

confounding effects of one proxy of investment opportunities, which is commonly

used by prior studies to capture unconditional conservatism. The calculation of the

implied cost of equity capital is based on Easton (2004)'s PEG method. This research

also addresses the endogeneity issue in accounting conservatism by applying the

instrument variables (i.e. 2SLS) if endogeneity exists. Accounting and financial

variables are retrieved from the *Thomson DataStream* and *I/B/E/S* databases. Most

instrument variables are manually collected from the *SET (Stock Exchange of*

Thailand) Market Analysis and Reporting Tool.

The results of H1 indicate that accounting conservatism is significantly associated with the three individual and the aggregated measures of future investment opportunities as the predicted signs, thus supporting H1. The results of H2.1 show that the association between accounting conservatism and the implied cost of equity capital is insignificant but the direction is negative as predicted, thus not supporting H2.1. The H2.2 results demonstrate that the association between the implied cost of equity capital and the aggregated measures of future investment opportunities is significant with the predicted negative sign, thus supporting H2.2.

The findings suggest that Thai firms with a higher (lower) degree of accounting conservatism through timely loss recognition are more (less) likely to create future investment opportunities. The study does not find the mediating (indirect) effect of the implied cost of equity capital on the relationship between accounting conservatism and the aggregated measures of investment opportunities due to a lack of significant results in the sub-hypothesis of the second hypothesis. However, the evidence indicates that Thai firms with a lower (higher) implied cost of equity capital is more (less) likely to enjoy future investment opportunities. Furthermore, future investment opportunities increase with dividend payments, share turnover, and firm size but decrease with market share.

This study also conducts additional and robustness analyses. First, this study additionally tests for H1 by controlling information asymmetry and examining whether increases in information asymmetry impact the relationships between accounting conservatism and the aggregated measure of future investment opportunities. The results of the additional test show that H1 holds after controlling for the ask-bid spreads, and increases in the ask-bid spreads do not affect those relationships. Second, this study uses a realized measure (instead of an expected measure) as an alternative proxy of future investment opportunities since the expected measures under study, which are derived from market expectation, could probably capture risks. The robustness test results show that future investment opportunities as measured by (1) capital expenditures scaled by total assets and (2) the new aggregated measure (which includes the capital expenditures) increase with the degree of accounting conservatism, thus validating the robustness of H1.

The dissertation contributes to accounting and corporate finance literature and has implications for capital market, regulators, and accounting standard-setters in numerous ways. First, this study contributes to literature focusing on economic consequences of accounting conservatism by providing evidence of the benefits of conservatism to future investment opportunities in Thailand. Prior studies on benefits of conservatism focus on debt markets while those benefits to equity markets are

less studied and unclear, especially in an emerging market setting. Investigation into

the benefits of conservatism in such a setting is thus appealing and the subsequent

findings could be applied to other economies with similar settings in which growth

opportunities are essential but agency problems are unique and complex. The

findings in which growth opportunities increase with conservatism provide empirical

evidence to support the role of conservatism in mitigating agency problems and

enhancing firm value (R. L. Watts (2003a); LaFond and Watts (2008)). The findings also

complement the recent works by Y. Kim, Li, Pan, and Zuo (2013) and B. Francis,

Hasan, and Wu (2013), who report that US firms' timely loss recognition reduces the

negative impacts on prices in the seasonal equity offerings and the financial crisis.

Most recently, Grace Lee, Li, and Sami (2014) demonstrate that conditional

conservatism mitigates expected litigation costs of auditors and hence US firms'

lower audit fees.

Second, this study is expected to extend existing firm-specific determinants of

future investment opportunities in corporate finance literature which professes that

corporate policies (e.g. dividend payment, share liquidity, the speed of innovation)

influence firms' growth opportunities (Yoon and Starks (1995); Becker-Blease and Paul

(2006); Garner, Nam, and Ottoo (2002)). Conservative accounting numbers can be an

important factor in determining Thai firms' growth opportunities after the 1997

economic meltdown. Accounting conservatism as a corporate governance mechanism helps managers identify the existence of negative NPV projects and/or positive NPV projects with short-term negative earnings. This study provides evidence of the governance role of accounting numbers in creating growth opportunities, consistent with a prior study by Hossian et al. (2005), who report that voluntary disclosure of forward-looking information positively affects growth opportunities of New Zealand's firms.

Third, examining the benefits of conservatism to future investment opportunities has implications for capital markets in terms of better understanding of the role of conservative financial reporting; and for regulators, accounting standard-setters, and critics who do not fully comprehend the reasons for and consequences of conditional conservatism. In 2010, the FASB removed conservatism from the conceptual framework of accounting and reasoned that conservatism could produce information asymmetry and conflict with the quality of neutrality. However, some academics contend that "elimination of conservatism will change managerial behavior and impose significant costs on investors and the economy in general" (R. L. Watts (2003a)). Basu also argues that "the chief complaint against conservatism was that current overstatement of expenses led to future overstatement of income, a criticism that applies directly to unconditional conservatism" (Basu (2009)). Coster

(2010) publishes an article titled "100 most trustworthy companies in the US" in *Forbes*, in which the author reports that those companies generally utilize the accounting practice with conservatism and transparency and they do not play game with the recognitions of revenues and expenses.

The empirical evidence of the benefits of conservatism to debt and equity markets in prior research and in this current study provides significant economic implications of conservatism for the standard-setters for consideration in future revision of the regulations. Shu, the winner of the accounting literature award in the 2014 annual meeting of the AAA, delivers a speech to members of the audience as follows: "when bad news accumulates up to some threshold, the managers cannot withhold it anymore, and they release it. We will see stock price crashes as bad news has been withheld and accumulated for a while" (Shu (2014)). A crash in the stock price implies that investors expect no growth opportunity in a firm. Nevertheless, severe negative consequences on stock prices are alleviated as economic losses are timely recognized in financial reports (B. Francis et al. (2013)).

The remainder of the dissertation is organized as follows. Chapter 2 reviews the background literature on accounting conservatism, future investment opportunities, and the implied costs of equity capital. Chapter 3 describes agency

theory and problems, and develops the hypotheses. Chapter 4 discusses the

research design, including sample selection and data, the variable measurement, the

models of hypothesis tests, and the endogeneity tests. Chapter 5 provides the

empirical results. Chapter 6 offers the conclusions, discussions, and limitations of the

dissertation including potential future research.

CHAPTER 2

BACKGROUND LITERATURE

This chapter begins with the interpretations, the terminology, and the advantages of accounting conservatism used in this study. Moreover, the benefits of conservatism to the markets are described. Next, the definition of future investment opportunities and their determinants are provided. Lastly, the role of the costs of equity capital as the mediator on the relationship between accounting conservatism and future investment opportunities is discussed.

2.1 Accounting Conservatism

Accounting conservatism has long exerted significant influence on accounting practice. The saying "anticipate no profit, but anticipate all losses" by Bliss (1924) seems to be the oldest description of accounting conservatism. Sterling (1967, 110) describes accounting conservatism as:

> "...the most ancient and probably the most pervasive principle of accounting evaluation is conservatism. ...the auditors consider conservatism to be the most influential principle of valuation in traditional accounting. ...we consider conservatism to be a much more fundamental and pervasive principle of practice or behavior than the others usually listed... (Sterling (1967))"

A more recent definition of accounting conservatism which is frequently referred to in modern accounting research is that of Basu (1997). He defines conservatism as "an accountant's tendency to require a higher degree of verification for good news than bad news in the financial statements". Similarly, R. L. Watts (2003b) defines conservatism as "a stronger verifiability requirement for the recognition of gains than for the recognition of losses". Thus, under conservatism, economic losses are reflected in reported earnings faster than are economic gains, resulting in the timelier recognition of losses.

This study has used the empirical definition of conservatism originally proposed by Basu (1997). The Financial Accounting Standard Board (FASB)'s explanations of conservatism (in Statement of Concepts No. 2), which seem to be closest to Basu's, are that "if two estimates of amounts to be received or paid in the future are about equally likely, conservatism dictates using the less optimistic estimate". Another definition of conservatism (the official definition) by the FASB that "a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered" is vague and hard to be operationalized and is inconsistent with those of Basu (Zhang (2005)).

Since the FASB's definitions of conservatism (as prudence) are too broad, conservatism is differently interpreted by accounting academics, hence giving rise to

the debates surrounding conservatism. Moreover, FASB (2010) (in Statement of Financial Accounting Concepts (SFAC) No. 8) has removed conservatism from the conceptual framework of financial reporting as the regulatory body believes that conservatism biases accounting information and is not corresponding to the quality of neutrality of financial reports[3]. The FASB has argued that the bias can cause information asymmetry which results in suboptimal decision-making by a firm and/or the parties to the firm. A criticism of conservatism that "the understatement of net asset values by conservatism in a particular period leads to the overstatement of earnings in the next period" has been popularized by the critics.

However, the criticism does not fit the definitions of conservatism in this study. Conservatism by Basu refers to "the cumulative financial effects in balance sheets and to incomes cumulated since the firm began operation" (R. L. Watts (2003a)) and focuses on the timeliness of economic loss recognition as a required attribute of accounting measures for contracting purposes. More importantly, the timelier recognition of losses relative to gains depends on economic news, not prejudge for the selection of a particular accounting method which understates net assets, but not reflect true economic benefits.

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[3] SFAC 8 defines the neutrality as "...without bias in the selection or presentation of financial information...". Based on this definition, financial information with conservatism is biased.

To address the issue of over-generalized definitions and criticisms of conservatism, attempts have been made to classify conservatism into two types using several pairs of names. For example, Basu (1995) and (1997), Ball, Robin, and Wu (2003) classified the practice into balance sheet conservatism and income statement conservatism[4]. Pope and Walker (2003) separated the practice into *ex ant* and *ex post* conservatism. Chandra, Wasley, and Waymire (2004) classified it into news independent and news dependent conservatism. Ball and Shivakumar (2005) and W. H. Beaver and Ryan (2005) divided the practice into unconditional and conditional conservatism, the terminology commonly adopted by recent literature on conservatism. The differences between unconditional and conditional conservatism are described below.

Unconditional (or *ex ante* or news independent) conservatism is defined as the practice to understate the book value of net assets due to "the predetermination of the accounting process at the inception of net assets" (W. H. Beaver and Ryan (2005)). The understatement of net assets does not take into account the timing and the future benefits of the assets. In other words, the lower of net assets is independent of economic news (not depend on changes in the economic value of underlying assets) in that a firm will commit at the inception to

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[4] Later, some academics, e.g. Ruch and Taylor (2011), argued that conditional conservatism affects both the income statement and the balance sheet. The outcomes of conditional conservatism are manifested on the income statement in the form of prompt losses and unrecognized gains (e.g. charges of the impairment, unrecorded increase in intangible assets' fair values). On the balance sheet, the prompt losses and the unrecognized gains result in fully recorded liabilities (loss accruals) and partially recorded assets (assets recorded below fair values), respectively.

recognizing book values of net assets that are below expected market values during the net assets' lives. For example, a firm adopts the double-declining depreciation method in place of the straight-line depreciation method even though the latter better reflects the economic usefulness of assets. The selection of the former method produces a lower value on the balance sheet due to its quicker depreciation of assets. Other examples are the immediate expensing of the costs of internally generated intangible assets, or the requirement of expensing research and development (R&D) expenditures rather than capitalizing these expenditures without consideration of their future realization.

Conditional (or *ex post* or news dependent) conservatism is referred to the requirement of more verification of good news (gains) than bad news (losses), which results in a different speed of loss versus gain recognitions in reported earnings. Under sufficiently adverse circumstances, book values are written down but not written up with favorable circumstances (W. H. Beaver and Ryan (2005)). To measure asymmetric timeliness of earnings, Basu (1997) compared the sensitivity of earnings to bad news (proxied by negative returns) with the sensitivity of earnings to good news (proxied by positive returns) and found that the former is higher than the latter. The examples of conditional conservatism include an impairment charge on assets in which the assets are written down when firms lose their competitiveness or customer bases, and a write-down of inventory due to damage, losses, obsolescence, and decline in market prices as a result of the disposal of inventory.

In short, conditional conservatism as the interpretation of accounting conservatism in this study depends on economic bad news' notification that the accountants lower the net asset value when the true economic benefits of the underlying assets decrease. On the other hands, unconditional conservatism is the practices of accountants to select accounting methods to lower the values of the net assets which the practices are unconditioned on economic news.

Although both types of conservatism lead to reductions of income and equity, the timing of the reduction is crucial for any principal-agent contracting purpose. Contracts between the parties to the firm require attributes of accounting measures, e.g. timeliness and asymmetric verifiability, to reduce agency costs as managers and other parties to the firm maximize their own wealth instead of the firm's value. In the modern perspective of accounting conservatism, recent literature has focused on the importance of timelier recognition of loss, i.e. conditional conservatism, for several reasons.

First, contracting or other incentive-related settings, e.g. debt contract, management compensation contract, require accounting recognition policies with a higher level of verification of good news than bad news to timely protect a principal's loss risks which might occur later (Ryan (2006)). For example, debtors and shareholders concern more whether they are timely informed about their capital losses than whether a firm in which they invest has an accounting policy that could lower the firm's net assets.

Second, both types of conservatism lead to reporting the lower value of firm

assets; however, only conditional conservatism incorporates new information. On the

other hands, unconditional conservatism does not take into consideration the cash

flow realization of future expected gains or losses. Rather, it is merely pre-judgment

to bias downward through the selection of accounting methods. Therefore, users of

financial information can predict and adjust for *ex ante* conservatism as the book

value of assets is systematically understated by a known amount (Ball and

Shivakumar (2005)).

Third, the application of unconditional conservatism is appropriate for

regulatory and/or tax purposes, while conditional conservatism is used to improve

contracting efficiency. A firm tends to adopt unconditional conservatism to prevent

regulatory intervention (e.g. investigation by the SEC) and to correspond with the

firm's tax minimizing strategies as this conservatism type is easy to control, costless

to implement, and thereby results in smoother earnings (Qiang (2007)).

With those above advantages of conditional conservatism which incorporates

new information and serving contracting purposes, this conservatism type has

become the anchor for a number of modern empirical works on accounting

conservatism[5] (e.g. R. L. Watts (2003b); Ryan (2006); LaFond and Watts (2008); Zhang

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[5]Under the modern perspective, most research studies on accounting conservatism are focused on conditional
conservatism. On the other hand, unconditional conservatism is perceived by many researchers to belong to the

(2008); Chi, Liu, and Wang (2009); Jere R. Francis and Martin (2010); R. R. Watts and

Zuo (2011); Ramalingegowda and Yu (2012); Y. Kim et al. (2013); Grace Lee et al.

(2014)). Basu (2009, p.2) depicts that:

> "What we now call conditional conservatism was recommended as good
>
> auditing practice in the early fourteenth century and journal entries from the
>
> early fifteenth century show it was being applied by businessmen. The lower-
>
> of-cost-or-market principle was induced from textbook examples and practice
>
> by the seventeenth century and was quickly codified into commercial law"

> Therefore, the current research follows those recent empirical studies and

interprets accounting conservatism as the timelier loss recognition in earnings

reporting (i.e. conditional conservatism) throughout the study.

As described before, accounting conservatism through the timely loss

recognition plays a crucial role in contracting and other incentive-related deals that

require a higher level of verification of good news than bad news. According to

Penman (2003), accounting practice is concerned with the property rights between

shareholders and bondholders, between shareholders and management, and

between shareholders and auditors. Contracts between parties to the firm require

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old perspective. It could create a downward bias in reported earnings and equity and should be done away with

by standard setters (Basu (2009)).

attributes of accounting measures, e.g. timeliness and asymmetric verifiability, to reduce agency costs as managers and other parties to the firm maximize their own wealth instead of the firm's value. Timely signaling of loss information helps reduce equity risks to contracting parties. Consistent with Ball and Shivakumar (2005), accounting conservatism, i.e. conditional conservatism, contributes to contract efficiency because it incorporates new information that could produce contracting responses.

In practice, conditional conservatism entails the adoption of lower of cost or market accounting for inventory and of impairment accounting for long-life tangible and intangible assets. A write-down for inventory occurs following unfavorable economic news, such as losses, obsolescence, damage, and decline in market prices or expected future cash flow rising from the disposal of inventory. A write-down for the long-life assets through an impairment charge takes place when the firm's competitiveness and customer base deteriorate.

In empirical research, the timely loss recognition is regarded as an efficient contracting mechanism which contributes to quality financial reporting and benefit both debt and equity markets (e.g. Ahmed et al. (2002); Zhang (2008); Beatty et al. (2008); LaFond and Watts (2008); Lara, Osma, and Penalva (2011); Y. Kim et al.

(2013)). The reasons are that conditional conservatism reduces the likelihood that the management make a liquidating dividend payment to shareholders at the expense of debt holders (benefit to the debt markets) and that they exert efforts to overstate net assets and cumulative earnings in order to distribute the firm's net assets to themselves instead of exerting efforts to undertake positive net present value (NPV) projects (benefit to the equity markets). The existence of negative NPV projects is also detected by the timely loss recognition, thereby enabling the management to take appropriate action. R. L. Watts (2003a) concludes that the reduction of dysfunctional actions through the timely loss recognition increases firms' values that are subsequently shared among the firms' stakeholders. Thus, this current research anticipates growth opportunities for conservative firms.

2.2 Benefits of Accounting Conservatism

An increasing number of empirical studies on economic benefits of conservatism through the timely loss recognition emerge since the work by W. H. Beaver and Ryan (2005), who point out differences of two types of conservatism. Zhang (2008) provides the evidence of conservatism benefits on both lender and borrower firms. The author argues that in a typical debt contracting process, lenders bear downside risks without an upside potential, so they favor mechanisms that lessen the downside risks. Conservative financial reporting through recognition of bad

news in a more timely fashion than of good news is likely to trigger covenant

violations, thus providing lenders with downside risk protections. The author further

reports that lenders will reward more conservative borrowers by lowering interest

rates[6]. In addition, Beatty et al. (2008) provide the evidence that debt covenant

modifications are used as tools to meet lenders' demand for conservatism. In

general, debt covenants are applicable to firms that do not attempt to withhold loss

reporting.

The agency costs attributable to: (1) asymmetry in information and loss

functions among contracting parties; and to (2) the inability to verify private

information of more informed parties (e.g. managers, controlling shareholders),

induce the adoption of more conservative accounting practice. Without proper

procedures for timely reporting of losses, managers will expend time on

manipulation and overstatement that deflect them from increasing the firm's value

to generating the agency costs and thereby reducing growth opportunity. LaFond and

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[6] Gigler, Kanodia, Sapra, and Venugopalan (2009) argue that the negative association between accounting conservatism and the implicit interest rates of debts does not suggest efficiency of debt contract that is improved by conservatism. Debt efficiency should be measured by the optimal debt arrangement that minimizes the sum of expected opportunity costs arising from decision errors due to false alarm and undue optimism. However, R. R. Watts and Zuo (2011) contradict that Gigler et al. (2009)'s model has a flaw since the model has failed to take into account managers' incentives for *ex post* earnings management. Gao (2011) proposes an analytical model that incorporates agency costs and showed that when managers engage in *ex post* earnings management, conservatism is an optimal measurement rule.

Watts (2008) report that equity investors favor US firms with more conservative

earnings reporting due to reduced agency problems. The authors also suggest that

asymmetric information that leads to the reduction in firms' value encourages firms

to recognize losses in a timely fashion with the notification of economic bad news.

In emerging market, Chi and Wang (2010) examine the relationships between earnings

conservatism and information asymmetry of Taiwan's firms. Their findings support

the hypothesis that conservatism would reduce the occurrence of information

asymmetry; thus, firms could use conservatism as a governance mechanism to

increase the firms' value and cash flows (Chi et al. (2009)). Therefore, investors

perceive conservative earnings as a tool to mitigate the agency problems arising from

information asymmetry and hence create growth opportunities.

Recent research involving timely loss recognition tends to focus on equity

markets since they are the main user of financial reports. Equity investors normally

require lower rates of returns for conservative firms providing timely loss information

(Lara et al. (2011); Li (2010)), so the likelihood of firms' undertaking new investment

opportunities is higher. In mergers and acquisitions, more profitable acquisition deals

are realized by bidders with more timely incorporation of economic losses into

earnings. Jere R. Francis and Martin (2010) investigate the acquisition-investment

decisions of US firms and conclude that if managers know beforehand of economic

losses due to timely recognition, they will not engage in the value-destroying acquisitions since negative earnings reduce earnings-based management compensations and jeopardize job security. With the timely loss recognition, managers have incentives to reject value-destroying projects and hence generate more profit from the acquisitions.

Ahmed and Duellman (2011) examine the role of timely loss recognition in monitoring managers' investment decisions. The authors argue that if conservatism provides the managers with *ex ante* incentives to avoid negative NPV projects and *ex post* monitors the investment decisions by the managers, firms with more conservatism likely have high future profitability. The authors utilize the sample of US firms and find that cash flows from operations and gross profit margins the following three years, as the measures of future profitability, increased with timely loss recognition. Furthermore, those firms with more conservatism have lower likelihood and magnitude of special items charged to the reported earnings in a current year. The works of both Jere R. Francis and Martin (2010) and Ahmed and Duellman (2011) indicate the improvement in investment decisions of conservative managers.

Capital providers or investors require information that lessens loss risks as they believe that managers are more likely to release only good news due to their career concerns and corporate reputation. B. H. Kim and Pevzner (2010) argue that the adoption of conservatism conditional upon economic news can prevent massive write-downs because the practice will not allow an early recognition of unrealized gains. Their findings reveal that conservatism leads to a lower likelihood of future bad news as measured by missing analyst forecasts, earnings decreases, and dividend decreases, suggesting that conservatism has informational benefits to shareholders. Similarly, Sohn (2012) concludes that financial analysts often incorporate conservative accounting into their earnings forecast and that earnings conservatism aids the analysts to carry out the earnings projection. Overall, the aforementioned evidence implies that capital markets (i.e. investors, analysts) give a higher valuation for conservative firms than for less conservative firms.

During an economic downturn, timely loss recognition becomes an effective tool as the practice mitigates adverse consequences, such as less borrowing capacity, underinvestment. The global financial crisis characterized by illiquidity in the banking system forces financial institutions to exercise more care when making loans to firms. In addition, the lending banks require more verifiable accounting numbers to assess borrowers' financial conditions (R. L. Watts (2003a)). R. R. Watts and Zuo (2011) note

that timely recognition of loss increased firms' borrowing capacity, which translates into value creation by mitigating underinvestment during the crisis. Therefore, more conservative firms experience less negative stock returns during the global financial crisis. R. R. Watts and Zuo (2011) utilize the US sample during the financial crisis period (2007-2009) and find evidence that the firm's crisis period stock returns is positively associated with its pre-crisis accounting conservatism.

B. Francis et al. (2013) also examine the impact of conservatism on shareholder value by using the sample and the study's the periods that are similar to those of R. R. Watts and Zuo (2011). The authors argue that managers are more likely to use private information to engage in aggressive earnings manipulations as information asymmetry and agency problems are severe in a situation of financial distress. The earnings manipulations impose increased information and agency risks on uninformed shareholders, and hence more negative returns during the crisis periods. The authors find that firms with more conservatism through the timely loss recognition experience smaller value losses compared to their less conservatism counterparts. Furthermore, the impact of conservatism on firm value is more pronounced for the firms with weak corporate governance.

Y. Kim et al. (2013) find evidence on the US sample that conservative firms face less negative market reactions during the seasonal equity offering (SEO) periods due to lower financing costs. The authors argue that potential investors are less likely to price protect themselves if they purchase shares from more conservative issuers. The reasons are that the asymmetric verification requirement inherent in conservatism limits managers' incentives and ability to overstate financial statements. Collectively, the studies of R. R. Watts and Zuo (2011), B. Francis et al. (2013), and Y. Kim et al. (2013) indicate that the timely loss recognitions increase the firms' ability to access funding, decrease the managers' aggressive earnings manipulation, provide more reliable and transparent accounting information to outside investors, and thus make new investments during the periods of economic downturn and SEO announcement.

Following the 1997 Asian financial crisis, Vichitsarawong et al. (2010) report an improvement in the levels of conservatism and timeliness of earnings for listed firms in Hong Kong, Malaysia, Singapore, and especially in Thailand whose capital markets are characterized by the ownership concentration in the hands of a few large shareholders, political connections, and low investor protections. Thus, it is less likely for listed Thai firms to report losses in a timely fashion due to higher costs of litigations. Furthermore, their findings reveal that corporate governance in Thailand

and in the other three countries improves significantly through more transparent

financial reporting in the post-crisis periods. Chitnomrath, Evans, and Christopher

(2011) report that the implementation of corporate governance via monitoring of

ownership concentration improves post-bankruptcy reorganization performance of

Thai listed firms. Both empirical works indicate that the emerging Thai capital markets

require the monitoring mechanism, e.g. the timely loss recognition, to promote

growth opportunities. Thus, accounting numbers with the characteristics of timeliness

(i.e. timely loss recognition) and transparency (verifiable gains) can mitigate the

agency problems and increase growth opportunities for Thai listed firms.

2.3 Future Investment Opportunities

The term "future investment opportunities" first appeared in Myers (1977)'s

theoretical work on corporate finance. He posits that a firm's value consists of the

values from assets-in-place and future investment opportunities or growth

opportunities as shown below:

$$V \quad = \quad V(A) \quad + \quad V(G)$$

where V is the current equilibrium market value of the firm, $V(A)$ is the market value

of assets already in place, and $V(G)$ is the present value of future investment

opportunities. Investment opportunities or growth opportunities are regarded as the

firm's call option to make future investments in which the firm's managers make a

discretionary decision to pursue or not to pursue the investments. A positive value of investment opportunities implies that the firm's future investments yield a rate of returns in excess of the opportunity costs of capital.

Kester (1984) and (1986) report that a significant portion of the market value of a firm's equity is accounted for by growth opportunities, particularly in industries with high demand volatility in which the proportions are approximately 70-80 percent of the firm's equity value. Pindyck (1988) suggests that, for firms with reasonable demand volatility, the proportion of the firms' values which are attributable to the value of assets in place should account for only a half or less. Consistent with Chung et al. (2005), growth opportunity plays a more dominating role than assets-in-place in determining initial public offering (IPO) prices as investors equate one dollar of growth opportunity to roughly three quarters of firms' assets.

The conventional notion of a future investment opportunity set (IOS) is that of new capital expenditures allotted for a new product launch, capacity expansion, acquisition of other firms, investment in brand name through advertising, or replacement and maintenance of existing assets. All variable expenses, such as advertising, research and development (R&D), are considered as part of IOS because they yield economic benefits lasting more than one year (Myers (1977)). Other forms

of IOS include an option to incur expenditures to reduce costs during a corporate restructuring. Examples of these costs, which are not capital expenditure, are severance pay, lease termination penalties, and so on. Thus, for restructuring firms, their market value reflects the value of the option to restructure (Kallapur and Trombley (2001)).

Future investment opportunities play an important role in corporate finance as they determine corporate policies such as financing, dividend payout, and compensation (e.g., Smith and Watts (1992); Skinner (1993); Baber et al. (1996); Gul (1999)). In accounting, they also influence whether an industry is an attractive target for audit specialization. Cahan, Godfrey, Hamilton, and Jeter (2008) report that the industry with higher investment opportunity level and homogeneity (within the industry) creates environments leading to auditor specialization. Specialist auditors costly invest the industry-specific knowledge for a firm with high investment opportunities so the auditors can create entry barriers to other audit companies.

Christies (1989) argues that the value of each firm's growth opportunities is different, depending upon both industry- and firm-specific factors. The former (i.e. industry-specific factors) are the primary determinants of the IOS involving the industrial advantages presented to the firm, e.g. barriers to entry or product life

cycles, which lead to competitive advantages and increase the value of the firm. For instance, investment in substitution of capital for labor leads to economies of scales and hence barriers to entry. Furthermore, investment in human capital enhances the firm's productivity while investment in R&D shortens the product life cycles with the introduction of new products, thereby creating a barrier for competitors to duplicate. The latter (i.e. firm-specific factors) reflect the firm's characteristics or ability that contributes to more opportunity to invest. In Internet and biotech firms (i.e. emerging firms) which have a greater proportion of growth options than assets-in-place, speed of innovation proxied by R&D expenditures is the critical determinant of enterprises' growth opportunities (Garner et al. (2002)). Not only can corporate strategy (e.g. the speed of innovation) lead to new investment opportunities but conservative accounting numbers can affect future investment as well.

2.4 Determinants of Future Investment Opportunities

In theory and practice, one of the most elusive financial goals has been the ability to price potential assets and growth opportunities. Investors seek information that helps them estimate the value of investment opportunities and hence the firms' values. Although empirical studies on pricing of investment or growth opportunities are few, those studies provide useful financial information to investors. Of those studies, Yoon and Starks (1995) examine the effect of dividend

announcement on future investment opportunities. Based on the cash flow signaling

hypothesis, managers possess more information regarding firms' cash flow than do

outside investors; therefore, the managers have an incentive to openly signal that

information to the investors. On the one hand, under the free cash flow hypothesis,

changes in dividend reflect managers' investment policies given their opportunity set.

Dividends will be paid less or not be paid if the managers are presented with new

investment projects. The authors find the evidence of the US sample and conclude

that subsequent investment opportunities increase over the three years following

the dividend changes, consistent with the cash flow signaling hypothesis.

The relationship between dividend payment and growth opportunities can be

explained by the pecking order theory in which firms prefer internal financing as the

main source of funds for investment projects (Myers and Majluf (1984); Chang (2009)).

Next in the order of preference are debt and external equity financing, respectively.

Based on the pecking order theory, there are two possible explanations for the

relationship. First, internal finance is first used to undertake the investment projects

before dividend payouts. Second, project investment might be postponed or forgone

as internal finance had been used to pay dividends. Thus, growth opportunities are

inversely correlated with dividend payments. Based on samples of Taiwanese listed

firms, a recent work by Chang (2009) suggests that firms' investment opportunities decrease with dividend payouts.

In emerging firms, determinants of corporate growth opportunities are unique as their asset structures are characterized by proportionately more growth options than assets-in-place, and growth opportunities are acquired through competitive investment (e.g. winning the race to innovation). Garner et al. (2002) report that growth opportunities in biotechnology and Internet firms lay in the firms' investments in R&D to create a breakthrough innovation or introduce a new product to the markets. The authors find that corporate growth opportunities increase with the speed of innovation as measured by R&D expenditures. This evidence implies that R&D projects that are successfully implemented trigger the timing to the capital investment. The research implies an interesting role of accounting numbers, i.e. R&D expenditures, in corporate growth.

Voluntary disclosure of prospective information by the management also affects firms' performance and prospect for future growth since financially informational signals enable firms to raise more capital or the same level of capital at lower costs. Hossian et al. (2005) use samples of listed firms in New Zealand to examine the association between the investment opportunity set and the voluntary

disclosure of forward-looking information using the simultaneity approach. The authors are convinced that the firms' equity can be underpriced by the market if managers possess more information about the firms' growth prospects than do investors. Thus, disclosure of that information alleviates underpricing problems of stocks. The authors also find that investment opportunities are positively associated with the disclosure of prospective information in simultaneous analysis. Similar to Hossian et al. (2005), Garner et al. (2002) report that publicly disclosed accounting numbers relate to management's forecast facilitate future investment.

Increase in investment opportunities is readily observable in firms with high stock liquidity as higher stock liquidity implies lower costs of capital. In finance theory, liquidity is a priced factor in expected asset returns as investors demand compensation for the difficulty of expected trading. Improving share liquidity results in assets-in-place being discounted at a lower rate of capital cost; therefore, increases in share liquidity are positively related to firms' value (Amihud and Mendelson (1986) and (1988)). Becker-Blease and Paul (2006) expect that if the costs of capitals are lowered as a result of increase in share liquidity, the investment opportunity set is more likely to expand. The authors use the Standard and Poor's 500 Index as the sample because firms in that index have a significantly permanent increase in stock liquidity. The authors show that stock liquidity influences corporate

investment opportunities as increase in liquidity effectively expands the set of positive NPV projects due to reduced costs of capitals.

The operationally testable models of growth opportunities based on the assumptions that firms' advantages and limitations affect growth opportunities are proposed by AlNajja and Riahi-Belkaoui (2001). The authors claim that reputational advantages are a significant indicator of organizational effectiveness as they are related to various decisions (e.g. resource allocation, product choices). Corporate reputations can be created by accounting and market information, or signals involving firms' past performance. Favorable reputations lead to favorable situations, e.g. the inhabitation of rivals' mobility in the industry, the capability of charging premium prices, or the creation of better corporate image in investors' eyes. In addition, multi-nationality advantages are considered as a collection of valuable options. Multi-nationality firms are likely to have better financing bargains and capital availability (Giavazzi and Giovannini (1989)). Internationalization can also lead to arbitrage benefits in financing cash flows by reducing taxes on financial flows and mitigating financial risks. Furthermore, the authors argue that large firms are presented with better and more advantages than are small firms as the former are able to make investments in the creation of entry barriers (e.g. economies of scale, product differentiation, patents, or brand royalty) (Chung and Charoenwong (1991)).

Collectively, firms' characteristics, i.e. reputation, internationalization and size, contribute to the creation of competitive advantages that directly affect future growth and investment.

2.5 The Cost of Equity Capital and its Association with Accounting Conservatism and Future Investment Opportunities

This current research also examines the role of the implied costs of equity capital as a mediating variable in the relationship between accounting conservatism and future investment opportunities. In other words, accounting conservatism may have an indirect effect on growth opportunities (through the implied costs of capital) for two reasons: First, accounting conservatism under timely reporting of bad news reduces risk premiums investors use to value firms in the presence of informational uncertainties (Guay and Verrecchia (2007); Lara et al. (2011)). Second, the costs of equity capital play a part in the creation of the investment opportunity set and the firm's value as they represent a discount rate of expected future cash flows (Johnson (1999)). Thus, the lower costs of capital result in greater future investment opportunities for firms. This research anticipates that accounting conservatism indirectly and positively influences future investment opportunities through the lower costs of equity capital.

A firm's cost of capital plays a key role in various corporate decisions as it

determines the harder rate of investment projects, influences the composition of

capital structures, and results in the firm's operations and subsequent profitability

(Easley and O'Hara (2004)). In general, a firm's costs of equity capital are the

expected rates of return that investors require from equity investment in that firm.

Since the costs of equity capital cannot be directly observed, the information to

estimate them comes from the investment markets. Hence, the equity costs are

always the investors' required rates of returns. In the capital allocation, the costs of

equity capital are important to a firm's investment decisions as the expectations of

capital providers will dictate the firm's selection of long-term investment projects. If

the shareholders require a relatively high rate of return (hence a high cost of equity

capital to the firm), the firm will be obliged to undertake only projects that satisfy

the shareholders' expectations (Johnson (1999), p.29). The empirical evidences

involving with the relationships (1) between accounting conservatism and the costs

of capital and (2) between the costs of capital and future investment opportunities

are provided as follows:

First, existing research acknowledges that accounting information, e.g.

accounting conservatism, voluntary disclosure, affects the firm's costs of capital (e.g.

Easley and O'Hara (2004); Lambert, Leuz, and Verrecchia (2007); Kothari, Li, and Short

(2009b); Lara et al. (2011)) and thus generate more investment opportunities. The analytical research in Easley and O'Hara (2004) examining the linkage between news information and the capital costs influences subsequent empirical works to provide the evidence of accounting treatments that reduce those costs. The authors argue that uninformed investors demand a higher risk premium to hold a stock with private information as informed investors vis-à-vis uninformed investors are better able to adjust the portfolio weights by incorporating new information, e.g. good news and/or bad news. As a result, the uninformed traders are disadvantaged (always hold too much of bad news stocks but too little of good news stocks) and cannot diversify this risk by holding more stocks because they are always on the wrong side. In the presence of risk-aversion investors and incomplete markets, the authors conclude that the firms' private information induces the investors' the higher risk premium which accounting treatment, e.g. conditional conservatism, likely lowers the risk premium, and hence low expected returns by the investors (low costs of capital by the firms).

To extend Easley and O'Hara (2004)'s the research work, Guay and Verrecchia (2007) model the role of conservatism by timely reporting of low (or bad) realizations on the discount which the markets apply to uncertainty about information structure leading to risk premium. In absence of mandatory reporting requirement, a manager

always behaves strategically by disclosing good performance voluntarily and

withholding bad performance. The authors conclude that the commitment of the

low (i.e. bad performance) realization disclosure by the manager will result in full

disclosure (both low and high realization) that increases the average prices of the

firm due to lower risk premium.

In empirical research, conservatism can decrease the firm's debt financing

costs as it provides timely and accurate loss information to both debtors and

shareholders. The debtors are likely to require a lower rate of return to compensate

for the reduced risk of excessive dividend payments. Ahmed et al. (2002) summarize

that conservative accounting that tightens restrictions on dividend policy will mitigate

bondholder-shareholder conflicts on excessive dividend payments and hence lower

the firm's debt costs. The shareholders who receive reliable loss information in a

timely manner will demand a lower rate of return as loss risks on shareholders'

capital are reduced.

Recent research extends the work of Ahmed et al. (2002) by focusing on the

costs of equity capital as a result of conditionally conservative practice with the

samples of US and international firms. For example, Lara et al. (2011) examine the

effect of the asymmetric reporting of gains and losses on *ex ante* (implied) and *ex*

post costs of equity capital[7] of US firms. The authors hypothesize that conservative

reporting is likely to reduce uncertainty about the amount and distribution of future

cash flows, thereby increasing firms' value while reducing those two measures of

equity costs. Their findings thus support the hypothesis. Artiach and Clarkson (2010)

provide empirical evidence consistent with the work of Lara et al. (2011) and

additional evidence of the marginal impact of conservatism. Artiach and Clarkson

report a decline in the negative association between accounting conservatism and

the implied costs of equity capital with improvement in the US firms' information

environment (i.e. disclosure of the analyst rating information).

In the international setting, Li (2010) examines the relationships between the

implied costs of equity and debt, and the asymmetric timeliness of gain and loss

recognitions. The findings show that firms with more conservative earnings reporting

have lower implied costs of equity and debts. Overall, those studies using the US

and international samples indicate negative associations between the timely loss

recognition and the implied costs of equity capital.

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[7]The measures of the *ex ante* (or implied) cost of equity capital come from the idea of the residual income valuation model, and the forecast data (e.g. earnings, dividend) are used to calculate them. On the other hand, the measures of the *ex post* cost of equity capital are based on historical returns from the market model or its subsequent extended models. Readers are advised to refer to Artiach and Clarkson (2011).

However, some empirical research on the association between accounting conservatism and the costs of capital has shown mixed results. J. Francis, LaFond, Olssan, and Schipper (2004) use US samples to study the relationship between the implied costs of equity capital and earnings attributes, i.e. accrual quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. The linear regression of the costs of equity capital on the earnings attributes shows no significant association between conservatism measured by the Basu model and the implied equity costs. Chan, Lin, and Strong (2009) study listed firms in the UK and find a positive association between earnings conservatism and the implied costs of equity. The authors report that earnings which reflected bad news faster than good news lead to less persistent and unpredictable current and future earnings streams, thereby lower quality of earnings and accounting information.

In the emerging market of Thailand with diverse interests, uninformed investors require a high risk premium if a firm in which they invest does not signal private information (e.g. loss information, voluntary disclosure). Anuchitworawong (2010) reports that Thai firms enjoy lower weighted average costs of capital when the firms have better governance practices (e.g. more disclosure and transparency). The author also suggests that good governance keeps investors better informed and

lessens agency problem types I and II. Similar to Priebjrivat (2011), the disclosure quality in management discussion and analysis (MD&A) decreases the costs of equity capital for firms in the SET50 index. Ekkayokkaya and Pengniti (2012) note that Thailand's governance regulations in general are effective but the effectiveness is reduced if inside shareholders retain absolute control of the firm. The timely loss recognition practice which has been increasingly embraced by Thai firms following the 1997 Asian financial crisis provides useful information to uninformed investors and reduces the divergence of interests in the capital markets. Thus, with the timely loss recognition, Thai firms' costs of equity capital will be lower, thus generating more future investment opportunities.

Second, empirical research on corporate finance reports the effects of the costs of capital on the values of firms (Firer (1993); AlNajja and Riahi-Belkaoui (2001); Becker-Blease and Paul (2006); Weiqi (2014)). Those research works are based on the valuation model in which a required rate of return as a risk factor determines the values of firms. Firer (1993) notes that when a growth firm sells its shares, investors buy not only the current incomes in perpetuity but also the firm's growth opportunities. The author further reports that growth opportunities as measured by P/E ratio are negatively correlated with discount rates, whereas the discount rates are positively correlated with the firm's risk.

AlNajja and Riahi-Belkaoui (2001) incorporate the CAPM risk premiums into the regression model to predict firms' growth opportunities. The authors report that the relationships between firms' growth opportunities and systematic risk depend on the definitions of growth. First, growth defined as real options leads to a positive relationship between growth and systematic risk. Second, growth defined as a monopoly power in the output market that results in larger economic rents leads to a negative relationship between growth and systematic risk. Last, growth in terms of expansion results in a negative relationship. The research results of the same authors show that the regression coefficients on the CAPM risk premiums are negatively significant, suggesting that firms' growth opportunities as investment expansion or possession of monopoly power increase with lower costs of equity capital.

Issuances of seasonal equity offering (SEO) are less likely when firms have higher costs of equity capital. The reasons are that investors react negatively to equity offerings to adjust for stocks with overvaluation since the investors believe that managers will offer equities only when the equities are overvalued. Weiqi (2014) examines the effects of forward-looking costs of equity on SEO using samples of US firms. The author reports that firms carrying out SEO with higher costs of equity capital face more negative returns, followed by lower long-run post-SEO returns. The forward-looking equity costs also negatively affect SEO proceeds, suggesting that

firms can raise more capital for future investment expenditures when the costs of equity are lower. Consistent with Becker-Blease and Paul (2006), S&P500 firms with high stock liquidity can expand their sets of positive NPV projects when the costs of capital are lower.

To the best of my knowledge, the effects of the implied costs of equity on firms' growth opportunities have never been investigated. This current research is expected to offer empirical evidence to support the theoretical model of firm valuation in the Thai setting. Moreover, the study of the effect of accounting conservatism on Thai firms' the costs of equity capital will provide additional evidence to those studies with the US and UK samples.

CHAPTER 3

THEORY AND HYPOTHESIS DEVELOPMENT

Agency theory addressing the principal-agency relations in a firm is accommodated in the first section of this chapter. Then, this study discusses the occurrence of agency problems when conservatism of financial reports is absent. In the last section, the research hypotheses are constituted under the underlying theory.

3.1 Agency Theory

The agency theory refers to an agency relationship or a contract in which one party (the principal) engages another party (the agent) to perform certain services on the principal's behalf. In addition, the principal delegates the decision-making authority to the agent (Jensen and Meckling (1976)). However, the agent does not always act in the principal's best interest since he or she attempts to maximize of his or her own utilities and hence the agency conflicts ensue. In theory, the agency problems arise because a corporation is viewed as "a legal entity 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). This thus leads to the agency problems of principal-agent

relationship.

The agency problems can be in the form of shrinking and perquisites, time

horizon, risk preference, and free-rider. For the problems of shrinking (exerting less

effort) and amassing of perquisites by the agent, Jensen and Meckling (1976) note

that when the owner-manager's proportion of the equity falls (i.e. more equity is

sold to outside investors), the utility-maximizing agent has an incentive to

appropriate a larger amount of the corporation's resources in the form of perquisites

and/or to exert less effort to create value for the shareholders. As the problems of

shrinking and perquisite emerge, the principals would protect their own wealth by

incurring agency costs (e.g. management compensation plan, brand name audit

company) to preclude the agent's self-serving behavior.

For the time horizon problem, the principals or shareholders are interested in

a firm's cash flow for an infinite number of periods into the future since their share

value is the present value of the future cash flow attributable to the share. On the

contrary, the agents or managers pay attention to the firm's cash flow only for the

length of time they intend to stay with the firm. The horizon problem arises when

the managers plan to move to another firm in the foreseeable future and thereby

undertake the projects with short-term profitability at the expense of long-term value of the firm.

For the risk preference problem, the portfolio theory states that shareholders have an ability to diversify their investment portfolios; thus, they are risk seekers with respect to their investment in any specific stock. The shareholders can minimize their exposure to investment risk from any one stock by investing in a variety of stocks and various types of investments (e.g. property, commodities, or derivatives). In contrast, managers prefer to invest in projects with less risk (lower net NPV projects) since they have significant undiversified human capital invested in the business they are managing. In other words, the managers' most valuable asset is their human capital or management expertise which is invested in the firm. Losing the job has a significant impact on the managers' wealth. Moreover, this risk cannot be completely diversified since the managers are employed in one management position. Therefore, the managers as risk averters rationally prefer to minimize their own risk rather than maximize the value of the firm.

With regard to the free-rider problem, when listed firms have a large dispersion of capitals, individual external shareholders have no incentive to monitor the management. On the contrary, they prefer to free-ride on other actions.

Collective interests of a group of external shareholders can motivate the shareholders to discipline the management whereas no rational individual shareholder would undertake such actions. In the absence of a mechanism to cope with the free-rider problems (e.g. conservative accounting), the management will run the business at their discretion to maximize their own interests.

Faced with the aforementioned agency problems, the principals likely incur the agency costs (i.e. monitoring costs, bonding costs, and residual loss) to pre-empt the agent's opportunistic behavior and protect their own wealth. First, the principals can design proper incentive schemes for the agent to minimize the divergence of interests and monitor the agent, and incur the monitoring costs (e.g. the costs in preparing financial reports, the costs of employing an auditor to certify the financial statements) to restrain unproductive activities of the agent. In addition, the principals may incur the bonding costs (e.g. the costs to create the management compensation plans) to ensure that the agent will not undertake actions that could harm the principals' interests. Lastly, despite monitoring and bonding, there remains some divergence between the agent's decisions and those that maximize the principal's welfare. The dollar equivalent of reduction in the principals' welfare as a result of this divergence is called the residual loss or deadweight loss which is borne by the principals.

The agents' opportunistic behaviors (e.g. shrinking, risk aversion, time horizontal and free-rider problems) necessitate the principal to incur large monitoring costs and bear the residue losses, thereby hindering firms' future growth. These agency problems appear in the firms' financial reports as long as accounting measures of the financial reporting inform shareholders about managerial performance (including the managers' welfare) and influence investors' asset allocation decisions. According to R. L. Watts (2003a), timeliness and verifiability of accounting conservatism is a means of addressing the opportunistic behaviors of managers in a firm with asymmetric information, asymmetric payoffs, limited horizons, and limited liability.

3.2 Agency Problems in the Absence of Accounting Conservatism

Without accounting conservatism, managers likely expedite the recognition of unverified gains. Due to the managers' limited tenure and limited liability, an upward earnings bias will produce large payments under an earnings-based compensation plan and possibly allow negative NPV investment by the firms, hence impeding the firms' growth. Discovery of overpayment and adoption of the solution to negative investment projects may be impossible since the managers can resign before the firms' cash flows are realized. A complete legal finding of fraud in investment projects or damage from the excessive payment is also generally unlikely. If the

managers undertook negative NPV projects, the full costs of the projects typically will be larger than the sum the managers received. More importantly, the actions by each individual (e.g. shareholder, investor) to expose those wrongdoings and impose penalties are less possible as the full costs of the actions are greater than individual's wealth. Accounting conservatism, in which losses are timely recognized and gains are verified, provides timely incentives and defers rewards to the managers for currently unverified future cash flows (Ahmed and Duellman (2011)). Therefore, timely loss recognition is an aiding tool for outside shareholders to monitor managers who accelerate the unverified gain recognition for managerial compensation purposes. In addition, the deadweight loss is mitigated as earnings conservatism is applied by the firm.

In the absence of accounting conservatism, the managers have a tendency to withhold bad news or losses since managerial disclosure preferences are not aligned with those of the shareholders (Kothari et al. (2009a)). The managers' action results in the shareholders' demand for a risk premium, thus inhibiting new investment by the firm. Generally, the managers have incentives, e.g. career concern, to withhold bad news or losses. The career concern is important to the managers due to the impacts on the management compensations at present and over a long horizon, i.e. the promotions, the post-retirement benefits, and the directorships. For instance,

some managers withhold losses to avoid being terminated prior to the end of their

tenure. In addition, managers who undertook negative NPV projects can cause

shareholders to initiate a movement to discharge the managers. The practice of

withholding bad news or losses subjects uninformed investors to the uncertainty

risks. To compensate for the risks, they normally require a higher rate of returns for

their capital invested. The firms thus can be forced to forgo several future positive

NPV projects due to the higher costs of capital.

Conclusively, accounting conservatism conditioned on economics bad news

mitigates the dysfunctional actions associated with managers' asymmetric payoffs,

limited horizons, and limited liability. These dysfunctional actions by the managers

often lead to rejection of positive NPV investment opportunities. Not only are

managers' opportunistic behaviors lessened as a result of accounting conservative,

but also accounting conservatism is a corporate governance mechanism that

provides loss signals to the managers, which is consistent with the signaling

perspective for corporate governance. For example, a timely loss signal will drive the

managers to identify the existence of negative NPV projects and to take corrective

actions to terminate the projects. Another example is that conservatism can mitigate

the situation in which managers forgo positive NPV projects with short-term negative

earnings since the projects' considerable payoffs will be realized long after the managers have retired.

3.3 Hypothesis Development

For firms in emerging markets such as those in Thailand, future investment opportunities or growth opportunities are essential because those firms need to raise fresh equity capital for new capital expenditures. In Thailand which is characterized by weak legal investor protection, ownership structure concentrated in the hands of a few family groups and affiliates, and interference in the enforcement of securities regulations by the private interests of business-owner politicians (Ekkayokkaya and Pengniti (2012)), growth opportunities are impeded by various forms of agency conflicts. The divergence of interests in Thai firms stems from the principal-agent relationships between managers and shareholders (agency conflict type I) and between inside and outside shareholders (agency conflict type II). According to Connelly et al. (2012), a majority of Thai firms are owned by inside shareholders while trading activities are initiated by small minority shareholders. Thus, minority shareholders or outside shareholders with no private information, in particular loss information, bear the uncertainty risk with regard to cash flows, a situation which likely worsens the capital financing of new investment by the firm.

This research argues that the application of timely loss recognition lessens the likelihood that the managers and/or inside shareholders withhold loss information that can later hurt outside shareholders; and that the managers accelerate the realization of unverified gains to appropriate the outside shareholders' wealth. The argument is consistent with Y. Kim et al. (2013), who report that potential investors are less likely to price protection or demand a higher return premium when purchasing shares from more conservative US firms during the announcement of seasonal equity offering since the timely loss recognition will limit the managers' incentives and ability to overstate earnings and provide the investors with a better tool to monitor the managers. Furthermore, R. R. Watts and Zuo (2011) and B. Francis et al. (2013) summarize that timelier recognition of losses enhance equity value during the global financial crisis due to better terms of borrowing, reduced managerial opportunism, lower information risks, thus more growth opportunity. Both Y. Kim et al. (2013) and R. R. Watts and Zuo (2011) base their studies on the US samples in which the majority of the agency conflicts stems from the divergence between the managers and the shareholders. In contrast, this current research study highlights evidence of the benefits of conservatism in mitigating the agency problems (agency conflict types I and II) and increasing growth opportunities within the Thai capital market setting. In addition, this current study adds evidence to the study on corporate finance by Hossian et al. (2005), who report that the

disclosure of prospective information by the sampled New Zealand firms leads to growth in their investment opportunity sets.

Under both types of the agency conflicts, Thai listed firms' growth opportunities are less likely to achieve even with numerous securities regulations and corporate governance reform after the 1997 Asian financial crisis. This current study expects that investors will price conservative Thai listed firms higher since the timely loss recognition (1) offsets the quickly upward earnings bias behavior of opportunistic managers and (2) provides a signal about uncertainty of future cash flows in a timely manner for equity investors without private information, hence generating more future investment opportunities for the firms. This study hypothesizes that accounting conservatism (i.e. timelier recognition of losses than gains and verification of gains prior to recognition) is positively correlated with the firms' future investment opportunities. The first hypothesis is thus as follows:

H1: Accounting conservatism through the timely loss recognition is positively correlated with future investment opportunities.

Since costs of equity capital are essential to firm valuation, capital budgeting, and important to management practices about investment, e.g. portfolio allocation (Hou, Dijk, and Zhang (2011)), this current study argues that the costs of equity

capital play a significant role in future capital investment and growth as they represent a risk premium on expected future cash flows in the assessment of growth opportunities (Johnson (1999)). When a firm expands the investment or possesses the monopoly power in the market, growth opportunities are a decreasing function of the costs of equity capital (AlNajja and Riahi-Belkaoui (2001)). Furthermore, Becker-Blease and Paul (2006) report that growth opportunities increase with firms' high stock liquidity due to their lower costs of capital. More recently, Weiqi (2014) documents that firms with higher costs of equity capital are less able to carry out the SEO; thus, future investment projects (e.g. capital expenditures for a new product) are postponed or rejected. Therefore, this study expects higher growth opportunities in the presence of lower costs of equity capital.

On the one hand, the lower costs of equity capital can be a result of accounting information quality with prompt reporting of economic bad news (losses). Accounting conservatism through the timelier recognitions of losses lowers risk premiums that investors apply to a firm's valuation in the presence of information uncertainties (Guay and Verrecchia (2007); Lara et al. (2011)). Uninformed investors will compensate for Thai conservative firms by requiring lower risk premiums since they know that managers or informed investors with considerably divergent interests from theirs generally have incentives to withhold loss information in order to

expropriate the uninformed investors' wealth. Lambert et al. (2007) further explain

that a quality of financial reports, e.g. conditional conservatism, has the direct effect

on assessments of future cash flow distribution by the market participants and the

indirect effect on real decisions by the firms influencing the expected value and

covariances of firm cash flows. Therefore, this study anticipates that more conditional

conservatism results in lower costs of equity capital.

As the above expectations, this study hypothesizes the mediating role of the

implied costs of equity capital that accounting conservatism (i.e. timelier recognition

of losses than gains and verification of gains prior to recognition) is positively and

indirectly correlated with firms' the aggregated measure of future investment

opportunities through the lower implied costs of equity capital (a mediating variable).

The second hypothesis is thus as follows:

H2: Accounting conservatism through timely loss recognition is positively and

indirectly correlated with the aggregated measure of future investment opportunities

through the lower implied costs of equity capital.

Hypothesis testing of the indirect effect requires two sub-hypotheses showing

the negative relationships (1) between accounting conservatism and the implied

costs of equity capital and (2) between the implied costs of equity capital and future

investment opportunities. The formal heuristic analysis of the simple indirect/mediating effects is based on Baron and Kendy (1986) that the M variable is considered a mediator if the X significantly predicts the Y, the X significantly predicts the M, and the M significantly predicts the Y. The indirect effect is quantified as a product of estimated coefficients from these two relationships (Preacher, Rucker, and Hayes (2007)).

The sub-hypotheses of H2 are as follows:

H2.1: Accounting conservatism through timely loss recognition negatively affects the implied costs of equity capital.

H2.2: The implied costs of equity capital negatively affect the aggregated measure of future investment opportunities.

CHAPTER 4
RESEARCH DESIGN

This chapter begins with sample selection and data. The methods of measuring conservatism, future investment opportunities, and the costs of equity capital are next discussed. Then, the models of hypothesis tests are formed and the control variables are described. Furthermore, this study offers endogeneity issues and the solution. Tests for the existence of the endogeneity problems are provided in the last section of this chapter.

4.1 Sample Selection and Data

The initial set of samples is listed firms in the Stock Exchange of Thailand (SET) of 2005-2011 from the *Thomson DataStream* with a fiscal yearend in December, excluding firms in the financial service and insurance industry. The listed firms in the initial samples with incomplete data on annual earnings, closing prices and stock returns eight years prior to determination of the degree of accounting conservatism are excluded. The financial, accounting and forecast data are also retrieved from the *Thomson DataStream* and *I/B/E/S* databases. The data pertaining to chairpersons, chief executive officers, audit committees and audit companies are manually collected from the *SET Market Analysis and Reporting Tool (SETSMART)*.

4.2 Measure of Accounting Conservatism

This study measures accounting conservatism according to Basu (1997) in which earnings respond to bad news (losses) more quickly than good news (gains). This is consistent with R. L. Watts (2003a), who notes that conservative accounting is a practice that requires asymmetric verifications for gains and losses. That is, for good news (gains), a high degree of verification should be carried out prior to earnings reporting. On the other hand, bad news (losses) requires a lower degree of verification prior to earnings reporting. Similar to existing studies of, e.g., Zhang (2008); B. H. Kim and Pevzner (2010); B. Francis et al. (2013), this current study determines accounting conservatism based on the Basu model in which a higher degree of timely loss recognition in earnings reporting indicates more conservative accounting.

In the Basu (1997) model, annual earnings are regressed on contemporaneous stock returns that represent economic news (good or bad news)[8]. A company's accounting practice is regarded conservative if it takes a shorter time for a bad news story to affect its earnings than does a good news report. In the model, stock return is a dummy variable in which a negative (or positive) return represents bad news or

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[8] The model is based on the assumptions that stock prices reflect information received from sources other than contemporaneous accounting earnings, thus the stock prices lead earnings by up to four year. "Test statistics and the OLS standard errors are better specified if the leading variable is designated as independent and the lagging variable as dependent" (Basu (1997)).

losses (or good news or gains). A value of 1 (or 0) is given to the dummy variable for

a negative (or positive) return. The Basu regression model can be expressed as:

$$X_{i,t} = \alpha_0 + \alpha_1 DR_{i,t} + \beta_0 R_{i,t} + \beta_1 R_{i,t} * DR_{i,t} + \varepsilon_{i,t}$$

$$\text{(+)} \qquad \text{(+)}$$

where $X_{i,t}$ is the earnings per share of firm i in fiscal year t scaled by stock price at

the beginning of fiscal year t^9, $R_{i,t}$ is the stock returns of firm i over 12 months

beginning 10 months prior to fiscal year-end t through two months after fiscal year-

end t, and $DR_{i,t}$ is a dummy variable which is equal to 1 if R_{it} is negative (bad news)

and 0 if positive (good news). β_0 reflects the morphing of good news into current

earnings and β_1 captures the incremental effect on current earnings reflecting bad

news relative to good news[10]. Under conservative accounting, β_1 is expected to be

greater than zero. The degree of conservatism (CONS) of firm i in year t is captured

by the relative sensitivity of earnings to losses (bad news) vis-à-vis the sensitivity of

earnings to gains (good news) as follows.

$$CONS_{i,t} = (\beta_0 + \beta_1)/\beta_0$$

According to Chan et al. (2009); B. H. Kim and Pevzner (2010), a CONS ratio of

firm i in year t is determined by performing a rolling Basu regression on an eight-year

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[9] The earnings per share is deflated by the opening stock price to control for heteroscadasticity (Christies (1987)).

[10] For good news: $X_{i,t} = \alpha_0 + \beta_0 R_{i,t} + \varepsilon_{i,t}$, and for bad news: $X_{i,t} = (1+\alpha_0) + (\beta_0+\beta_1)R_{i,t} + \varepsilon_{i,t}$.

window backward for any single year to first obtain β_0 and β_1. For instance, β_0 and β_1

of firm i in year 2005 are obtained by regressing firm i's annual earnings on its current

returns from year 1998 to 2005. The CONS ratio of firm i reflects the relative

sensitivity of earnings to bad news or losses ($\beta_0 + \beta_1$) compared with their sensitivity

to good news or gains (β_0). It follows that the higher the CONS ratio, the more

conservative the firm is in its reporting.

Critics of the Basu asymmetric timeliness (AT) measure, Dietrich, Muller, and

Riedl (2007) test the performance of AT in identifying the degree of accounting

conservatism and report that the AT measure is subject to biases inherent in Basu's

research design. Stock return is an endogenous variable, so treating it as an

independent variable in Basu's reverse regression renders the results that are not

interpretable. The authors note that differences across good and bad news

coefficients in the AT regression are attributable to the formation procedures and the

distributional properties of the samples. The authors indicate that only under

restrictive conditions the AT research design consistently presents evidence of

accounting conservatism. Nevertheless, the same authors do not provide an

operative solution to address the biases.

Wang, HOgartaigh, and Zijl (2009) express that "the debate about the

existence and the direction of the AT biases remains unsettled in the literature".

Even some papers (i.e. Dietrich et al. (2007); Givoly, Hayn, and Natarajan (2007))

challenge the usefulness of the AT measure, the recent study of Ettredge, Huang,

and Zhang (2012) finds that the Basu-based metrics are effective to detect variations

in conservatism in the restatement setting, suggesting the usefulness of the Basu AT

measure. This current study regards the Basu's AT measure as the direct measure of

the timely loss recognition in earnings reporting and holds a view that no conclusive

solution exists to address the issue of AT bias. However, in the event that such a

solution existed, it will be difficult to implement. Similar to several more recent

studies (e.g. Zhang (2008); Chan et al. (2009); Jere R. Francis and Martin (2010); B. H.

Kim and Pevzner (2010); Watts and Zuo (2011); B. Francis et al. (2013)), this research

work adopts the rolling Basu AT model to determine the degree of accounting

conservatism[11].

4.3 Measures of Future Investment Opportunities

Future investment opportunities of a firm are not easily observed by

outsiders as the growth opportunities are influenced by several factors, e.g.

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[11] A survey by Wang et al. (2009) reveals that the Basu AT is the most commonly used measure of conservatism in which 36 out of 52 papers reviewed by the authors used the Basu AT.

macroeconomic factors, management discretion, and industry-specific factors (Myers (1977); Kallapur and Trombley (1999)). Thus, it is unlikely for an individual proxy to be a perfect measure of future investment opportunities (Hutchinson and Gul (2004)). Out of many proxies that appear in corporate finance literatures[12], Kallapur and Trombley (2001) classify the proxies of future investment opportunities into three categories: price-based proxies, investment-based proxies and variance-based proxies, each of which is based on different underlying theories and arguments[13]. Adam and Goyal (2008) evaluate the performance of various proxies of investment opportunities of the mining industry in which firms' major investment opportunities are observed by outsiders. They report that the price-based proxies better capture the information about investment opportunities, compared with the investment-based proxies. In addition, the price-based proxies, in particular the market-to-book value, are typically utilized by researchers to determine future investment opportunities.

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[12] Examples are research studies by Smith and Watts (1992), Gaver and Gaver (1993), Skinner (1993), Baber et al. (1996), and Abbott (2001).

[13] (i) Price-based proxies are based on the argument that stock prices reflect firms' expected information, including information about growth prospects. Thus, market value is likely to be high for firms with growth prospects; (ii) Investment-based proxies represent the notion that a high level of investment activity induces the investment opportunity set (IOS) of a firm. Firms with a high IOS should have a high level of investment activity as the IOS is converted into assets over time, and (iii) Variance-based proxies are based on the assumption that investment options become more valuable with increase in the variability of returns on the underlying assets.

This current study implements multiple proxies of a future investment opportunity set (IOS) to strengthen the results due to a lack of consensus with regard to the best proxies for investment opportunities. Moreover, the adoption of one single proxy is prone to result in measurement errors. In addition, a majority of empirical research on future investment opportunities adopts at least two proxies since the practice enhances the validity of the results. The multiple proxies in this current research encompass three price-based proxies (i.e. market-to-book of equity[14], geometric mean growth rate of market value of assets, and earnings-to-price); one variance-based proxy (variance of return on market value of assets); and the aggregated measure (the average rank of the four aforesaid measures). The underlying concepts, the definitions, and the references of the proxies are later discussed.
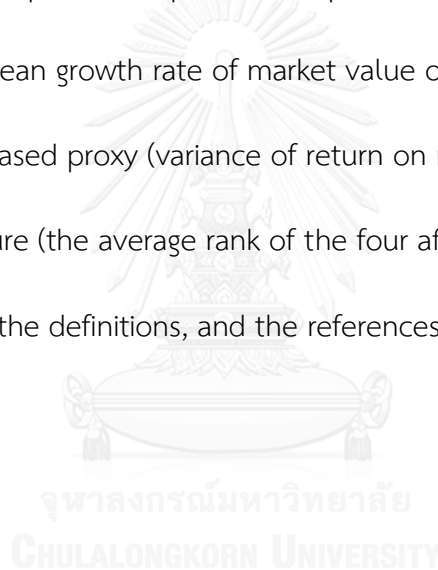
This research has adopted the price-based proxies to measure the IOS because of the straightforward underlying argument that if stock prices partly capture firms' growth/investment prospects, growth firms are likely to have a higher market value with respect to the assets-in-place value. In addition, the variance-based proxy

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[14] Instead of the real value of market-to-book of equity, *the absolute value of residuals of market-to-book of equity* is used in this study. Since the market-to-book ratio can serve as a proxy of unconditional conservatism, another type of accounting conservatism, the use of the real value of the market-to-book ratio can render the result interpretation invalid. The absolute value of residuals of market-to-book of equity is detailed in section 4.3.1.

is used in this study since it represents the IOS magnitude under the rationale that

the value of growth options is a function of the variability of stock returns. The use

of variance measure is proposed by Chung and Charoenwong (1991), who report that

the value of investment options increases with the variability in cash flows.

Moreover, this current research establishes the aggregated measure by averaging the

decile ranks of the IOS proxies to facilitate interpretation of the regression

coefficients[15].

4.3.1 The Absolute Value of Residuals of Market-to-Book of Equity (arMBE)

This research work adopts the ratio of market-to-book value of equity that is

widely used by literatures (e.g. Gaver and Gaver (1993); Kallapur and Trombley

(1999); Hossian et al. (2005); Cahan et al. (2008)) as an initial proxy to determine the

absolute value of residuals of market-to-book of equity. Collins and Kothari (1989)

note that the difference between market value and book value directly represents

the value of investment opportunities of a firm. According to Adam and Goyal (2008),

the market value of equity reflects the present value of all future cash flows to

equity holders from both assets-in-place and future investment opportunities. On the

other hand, the book value of equity represents only the accumulated value

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[15] Certain studies, e.g. Hutchinson and Gul (2004), employ a factor analysis to construct the composite measure.
However, the interpretations of the factor scores are complicated and the main objective of the factor analysis is
to reduce multiple variables.

generated by the existing assets. Thus, the ratio of market value to book value

reflects future cash flows to shareholders coming from investment opportunities.

However, Biddle, Ma, and Song (2011) apply the ratio of market-to-book of

equity to measuring unconditional conservatism, a type of accounting conservatism

classified by W. H. Beaver and Ryan (2005) and Ball and Shivakumar (2005). It follows

that if the market-to-book equity ratio can measure both future investment

opportunities and unconditional conservatism, the conclusion of this current study

will be invalid. To address this issue, this study thus adopts the residual value of

market-to-book of equity from a simple regression in which market-to-book of equity

is regressed on average total accruals, i.e. another proxy of unconditional

conservatism[16]. The solution is based on an assumption that average total accruals

will cancel out the effects of unconditional conservatism. Since the effects are

reflected in the market-to-book of equity, the residuals of market-to-book of equity

better represent future investment opportunities. This study uses the absolute value

of the residuals of market-to-book of equity ($|\varepsilon_{i,t}|$) since only the magnitude is of

interest. In general, the larger the absolute value of the residuals of market-to-book

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[16] Several studies, e.g. Ahmed and Duellman (2007), Hui, Matsunaga, and Morse (2009), Biddle et al. (2011), use average total accruals to determine unconditional conservatism.

of equity, the higher the value of investment opportunities. The simple regression to capture the residuals of market-to-book of equity is:

$$MBE_{i,t} = \alpha_0 + \alpha_1 TAC_{i,t} + \varepsilon_{i,t}$$

where $MBE_{i,t}$ is the market-to-book value of equity of firm i in year t, $TAC_{i,t}$ is average total accruals scaled by average total assets from year t-2 to year t, multiplied by -1 (negative one)[17]. Total accruals are equal to net incomes before extra-ordinary items less cash flows from operation plus depreciation expense.

Givoly and Hayn (2000), who devise the total accrual measure, argue that unconditionally conservative firms select the accounting principles that lead to understatement of net assets through lowered asset or increased liability valuations; and through slower revenue or faster expense recognition. Therefore, the implementation of unconditionally conservative accounting will result in negative accruals for firms. A lower value of negative average total accruals of a firm indicates that the firm has practiced a higher degree of unconditional conservatism.

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[17] The ratios of average total accruals are multiplied by negative one (-1) because unconditional conservatism leads to negative accruals.

4.3.2 Three-Year Geometric Mean Annual Growth Rate of Market Value of Assets (GRMVA)

The second price-based proxy for determination of future investment opportunities of this current research is the three-year geometric mean annual growth rate of market value of assets. The GRMVE of firm i in year t is calculated as follow.

$$\text{GRMVA}_{i,t} = [(\text{Market value of assets})_{i,t} \text{ / (market value of assets)}_{i,t-3}]^{1/3}$$

$$= \{[\text{Book assets} - \text{total common equity} + (\text{share outstanding}$$

$$\times \text{ share closing price})]_{i,t} \text{ / [book assets} - \text{total common equity}$$

$$+ (\text{share outstanding} \times \text{share closing price})]_{i,t-3}\}^{1/3}$$

This measure is utilized by Baber et al. (1996), Abbott (2001), Cahan et al. (2008), and Chen, Elder, and Hung (2010). Cooper, Gulen, and Schill (2008) evaluate the abnormal-return forecasting ability of the assets growth rate measure by comparing with other measures previously documented. They conclude that the growth rate of market value of assets is a strong predictor of future abnormal returns. If the future abnormal returns partly embody future growth/investment prospects, a growth firm will be presented with more new opportunities to invest. It follows that the high growth rate of market value of assets suggests the high growth opportunities.

4.3.3 Earnings-to-Price (EP)

The earnings-to-price ratio is the third measure employed to capture future investment opportunities. The EP of firm i in year t is calculated as follow.

$EP_{i,t}$ = Earnings per share before extraordinary items$_{i,t}$ / share closing price$_{i,t}$

The earnings-to-price ratios are used in the studies by Smith and Watts (1992), Gul (1999), and Ho, Lam, and Sami (2004). Chung and Charoenwong (1991) model firms' equity value as the capitalized value of earnings derived from assets-in-place plus the present value of future investment options. Derivation of the earnings-to-price ratio is detailed in Appendix B. They find that the earnings-to-price ratio and future growth opportunities are inversely correlated. Thus, the larger the earnings-to-price ratio, the larger the proportion of the equity value attributable to earnings generated from the assets-in-place vis-à-vis the growth opportunities. However, their findings are based on the limiting assumptions that current earnings are an adequate proxy of cash flows received from assets-in-place in perpetuity. In addition, the benefits of the earnings-to-price ratio are limited to firms with non-negative earnings. According to Chung and Charoenwong (1991), the higher the earnings-to-price ratio is, the lower the future investment opportunities in relation to the assets-in-place.

4.3.4 Annualized Variance of Return on Market Value of Assets (VAR)

The variance of total returns on market value of assets is the fourth measure

used in this current research. The VAR of firm i in year t is calculated as follow.

$VAR_{i,t}$ $= \sigma^2$(Total stock returns$_{i,t}$ / Market value of assets$_{i,t-1}$)

$= \sigma^2${[Changes in market value of equity + common dividends

+ interest expense]$_{i,t}$ / [book assets – total common equity

+ (share outstanding x share closing price)]$_{i,t-1}$}

The measure is based on a time series of at least four annual observations

ending in 1998. The variance-based measure of investment opportunities is used in

the studies by Smith and Watts (1992), Baber et al. (1996), and Abbott (2001). The

underlying assumption of the measure is that "investment opportunities become

more valuable with increase in the variability of returns on the underlying assets"

(Gaver and Gaver (1993)). Since the variability measures reflect the magnitude of

growth options, firms with future growth opportunities are thus likely to have high

variability in stock returns.

4.3.5 The Aggregated Measure (RANK)

The fifth measure of investment opportunities of this research work is the

average rank of the four aforementioned measures. The average rank enables an

efficient interpretation of the regression coefficients. This measure is computed by averaging the decile rankings of four proxies, i.e. ar*MBE*, *GRMVA*, *EP*, and *VAR*. In general, a high average rank indicates more future investment opportunities.

4.4 Measure of the Costs of Equity Capital

This research employs the implied (or *ex ante*) costs of equity capital by Easton's (2004) Price-Earnings-Growth (PEG) method to measure the expected costs of equity, rather than the realized (or *ex post*) costs of equity for two reasons:

First, literature has long recognized that the realized rates of returns (i.e. realized costs of equity) are a noisy proxy of the costs of equity capital (e.g. Elton (1999); Vuolteenaho (2002); Botosan, Plumlee, and Wen (2011)). The realized return at time *t* is a function of the expected return at time *t* plus the unexpected return due to new information[18]. To apply the realized return as a proxy of the expected return, conventional research assumes that the unexpected return due to new information has a mean of zero, and the in-sample average of the realized returns across time or firms removes the unexpected return to produce a valid proxy for the

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[18] The unexpected return due to new information is broken down into two components: the unexpected return attributable to cash flows news and that to expected return news. Readers are advised to refer to Botosan et al. (2011).

expected return. However, Elton (1999) reports that the unexpected return tends to

be large and related across time and firms; thus, the average cannot eliminate the

unexpected return.

Vuolteenaho (2002) further demonstrates that the unexpected components

are significant factors to determine firm-level stock returns and that cash flow news is

largely firm-specific, while the expected return news is related to systematic

macroeconomic factors. The findings of Elton (1999) and Vuolteenaho (2002) suggest

that both firm-level and portfolio-level realized returns are not good proxies of the

expected returns or equity costs due to the noises. In addition, the implied costs of

equity are more applicable to this current research since future investment

opportunities are measured by market expectation (*ex ante* measures), rather than

realization (*ex post* measures), e.g. long-term assets.

Second, among alternative measures of the implied costs of equity[19], this

research study employs the method of Easton (2004) following the research works of

Ashbaugh, Collins, and LaFond (2004); Chan et al. (2009); and Artiach and Clarkson

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[19] For example, the GOR finite horizon model of Gordon and Gordon (1997), the DIV target price method of
Botosan and Plumlee (2002), the PEG price-earnings-growth method of Easton (2004), the OJN economy-wide
growth method of Ohlson and Juettner-Nauroth (2005). For more information, readers are advised to consult the
review work by Artiach and Clarkson (2011).

(2010). The reasons are that this method is simple and, more importantly, requires fewer forecast accounting input variables compared to other measures. Botosan et al. (2011) assess the validity of 12 alternative proxies for firm-specific costs of equity capital and find that only two (i.e. the DIV method and the PEG method) are positively correlated with future realized returns and firm-specific risks after controlling for new information, and hence valid estimates of the construct of interest.

In the PEG method, Easton (2004) uses price and analysts' earnings forecasts to derive the internal rate of return to estimate the cost of equity capital. The author develops the PEG model based on two arguments: (1) if next-period earnings forecasts are equal to economic earnings, then these earnings are sufficient to valuation and the expected rate of return is equal to the inverse of price to expected earnings (PE) ratio, and (2) if next-period earnings forecasts are equal to economic earnings but abnormal growth in earnings is constant in perpetuity, then these forecasts are sufficient for valuation and the expected rate of return is equal to the square root of the inverse of 100 times the PEG ratio. The implied costs of equity capital by the PEG method are calculated as:

$$rPEG_{i,t} = \sqrt{(feps_2 - feps_1)/p_0}$$

where $rPEG_{i,t}$ is the implied costs of equity capital of firm i in year t, $feps_2$ is the two-year-ahead consensus forecast of annual earnings per share of firm i in year t, , $feps_1$ is the one-year-ahead consensus forecast of annual earnings per share of firm i in year t, p_0 is the closing price of firm i at year 0. Data of earnings forecast for calculation are retrieved from *Thomson*'s *I/B/E/S* database.

4.5 Testing of H1

H1, which hypothesizes that accounting conservatism through timely loss recognition increases future investment opportunities, is tested with regression model (1) below. The model encompasses the accounting conservatism variable, a set of control variables that are correlated with future investment opportunities, and year and industry fixed effects as follows.

H1 (OLS):

$$IOS_{i,t} = \alpha_0 + \alpha_1 CONS_{i,t} + \alpha_2 DIVPAY_{i,t} + \alpha_3 STOCKTURN_{i,t}$$
$$+ \alpha_4 PROFIT_{i,t} + \alpha_5 SIZE_{i,t} + \alpha_6 MKCON_{i,t} + \alpha_7 EXPENS_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t} \qquad (1)$$

The dependent variable, $IOS_{i,t}$, is firm i's future investment opportunities in year t, whose future investment opportunities are measured by: (1) the absolute value of residuals of market-to-book of equity (arMBE), (2) three-year geometric mean annual growth rate of market value of assets (GRMVA), (3) earnings-to-price (EP), (4) annualized variance of return on market value of assets (VAR) and (5) the aggregated measure (RANK). $CONS_{i,t}$ is firm i's the degree of accounting conservatism in year t, as measured by the relative sensitivity of earnings to losses compared to the sensitivity of earnings to gains from the Basu regression model. The variable of interest in the regression model (1) is CONS, where the coefficient of CONS is expected to be positive in H1.

Two sets of factors, i.e. firm and industrial characteristics, constitute the control variables since they have been shown to be related to future investment opportunities. In the first set of control variables, dividend payout ratio ($DIVPAY_{i,t}$), stock turnover ($STOCKTURN_{i,t}$), profitability ($PROFIT_{i,t}$), and firm size ($SIZE_{i,t}$) are employed to guarantee that corporate policies, stock liquidity, performance, and size have no influence on the main finding. In the second set, market concentration ($MKCON_{i,t}$) and advertising and selling activities ($EXPENS_{i,t}$) are used to control for business and operating environment. The definitions and the references of the control variables are as follows:

Dividend payout ratio (DIVPAY) is the ratio of annual dividend payment to annual earnings before extraordinary items. Chang (2009) reports a negative association between dividend payout and future investment opportunities. According to free cash flow hypothesis, firms with more investment opportunities likely reserve cash for the upcoming investments by decreasing or temporarily ceasing cash dividend payments. Yoon and Starks (1995) find evidence that growth opportunities are positively correlated with the dividend payments of the last three years. Based on cash flow signaling hypothesis, the authors summarize that dividend payment reflects future cash flows' expectation. Thus, this current study makes no prediction about directions of the relationship between dividend payout ratio and investment opportunities.

Stock turnover (STOCKTURN) is calculated by dividing the number of shares traded by the number of outstanding shares in a fiscal year. Becker-Blease and Paul (2006) find a positive correlation between stock turnover and future investment opportunities in a sample of S&P500 firms. In general, investors prefer to invest in stocks with high liquidity since it is possible for them to anticipate the rate of return on the stocks. Investors are willing to pay premium prices for stocks with higher liquidity by asking for lower rates of return on expectations of more future

investment opportunities. This current study expects a positive relationship between stock turnover and investment opportunities.

Profitability (PROFIT) is the ratio of annual operating incomes to total assets. According to Hossian et al. (2005), profitability is positively correlated to investment opportunities. Future investment opportunities are viewed as the risk-adjusted net present value of expected future profits (Chauvin and Hirschey (1993)). In general, investors rely on the current rate of profitability as the best available indicator of future profits. Thus, large current profits reflect firms' future investment opportunities and hence the investors' expectation of continued future profitability. A positive association between profitability and investment opportunities is hence anticipated.

Firm size (SIZE) is determined by a natural logarithm of annual sales. The relationship between firm size and future investment opportunities is either negative or positive. A negative correlation is attributable to a belief that larger firms tend to deplete growth options as they expand, thereby leaving them with limited opportunity to expand (Hossian et al. (2005)). On the other hand, a positive relationship is based on another theory that larger firms, compared to smaller firms, are in a better position to create and explore new investment opportunities, so future expansion is easily achieved by the large-sized firms (Chauvin and Hirschey

(1993)). This study makes no prediction about directions of the relationship between firm size and investment opportunities.

Market concentration (MKCON) is the ratio of a firm's revenues to total industry revenues in a fiscal year. Market concentration or market share is an important factor in determining a firm's growth opportunities. Firms with a larger market share can create a barrier to entry to new entrants owing to the economies of scale, lower costs of capital, and monopoly in the future economic rents (Christies (1989); Cheng (2005)). Thus, a larger market share allows a firm to retain its growth. Nevertheless, market leaders whose businesses reach the maturity stage of product life cycle are less likely to make additional investment, thereby retarding or inhibiting growth of the businesses. This study makes no prediction about directions of the relationship between market concentration and investment opportunities.

Advertising and selling activities (EXPENS) can influence the market value of a firm since, through the activities, managers contribute more efforts to boosting the firm's sales through advertising and sales promotion activities. Firms with high amounts of advertising and selling expenditures create and possess more competitive advantages, including opportunities to expand, than firms with low promotional expenditures (Bublitz and Ettredge (1989); Hossian et al. (2005)). Thus,

advertising and selling activities are expected to be positively correlated with

investment opportunities. Nevertheless, it is not mandatory for SET-listed firms to

report advertising and selling expenses as a separate item in the financial statements.

Thus, the selling and administration expenses[20] in a fiscal year scaled by annual sales

is used as a proxy of advertising and selling activities in this current research work.

However, since it is hypothesized that advertising and selling expenses are positively

correlated with selling and administration expenses, the variables of advertising and

selling activities should be interpreted with caution.

4.6 Testing of H2

H2, which hypothesizes that accounting conservatism indirectly increases the

aggregated measure of future investment opportunities through lower implied costs

of equity capital, is tested with the two regression models below. Hypothesis testing

of the indirect effect requires two sub-hypotheses showing the negative relationships

(2.1) between accounting conservatism and the costs of equity capital, and (2.2)

between the costs of equity capital and the aggregated measure of future

investment opportunities. The indirect effect is quantified as a product of estimated

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[20] It is not mandatory for Thai listed firms to separate selling expenses from administration expenses in the
financial reports. Therefore, total selling and administration expenses are used in this research.

coefficients from these two relationships. All the regression models include control variables, and year and industry fixed effects as follows.

H2 (OLS):

$$rPEG_{i,t} = \alpha_0 + \alpha_1 CONS_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 BTM_{i,t}$$
$$+ \alpha_5 RVOLAT_{i,t} + \alpha_6 EVOLAT_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t} \qquad (2.1)$$

$$RANK_{i,t} = \alpha_0 + \alpha_1 rPEG_{i,t} + \alpha_2 DIVPAY_{i,t} + \alpha_3 STOCKTURN_{i,t}$$
$$+ \alpha_4 PROFIT_{i,t} + \alpha_5 SIZE_{i,t} + \alpha_6 MKCON_{i,t} + \alpha_7 EXPENS_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t} \qquad (2.2)$$

In the regression model (2.1), $rPEG_{i,t}$ is the implied cost of equity capital of firm i in year t from the PEG method of Easton (2004). $CONS_{i,t}$ is the degree of accounting conservatism of firm i in year t. The control variables comprise firm size ($SIZE_{i,t}$), financial leverage ($LEV_{i,t}$), book-to-market value of equity ($BTM_{i,t}$), return volatility ($RVOLAT_{i,t}$), and earnings volatility ($EVOLAT_{i,t}$). The control variables are to control for size, capital structure, market expectation, risk factors, and the volatility of business and macro-economy. The variable of interest in this regression model is CONS, where the coefficient of CONS is expected to be negative in H2.1.

In the regression model (2.2), $RANK_{i,t}$ is the average decile ranking of four measures of future investment opportunities (i.e. arMBE, GRMVA, EP, and VAR) of firm

i in year t. The control variables consist of dividend payout ratio (DIVPAY$_{i,t}$), stock turnover (STOCKTURN$_{i,t}$), profitability (PROFIT$_{i,t}$), firm size (SIZE$_{i,t}$), market concentration (MKCON$_{i,t}$), and advertising and selling activities (EXPENS$_{i,t}$). These control variables are to control for corporate policies, stock liquidity, performance, size, and business and operating environments. The variable of interest in this regression model is rPEG, where the coefficient of rPEG is expected to be negative in H2.2.

The definitions of the control variables in the regression model (2.2) are similar to those in H1 testing. On the other hand, the definitions and references of the control variables in the regression model (2.1) are as follows:

Firm size (SIZE) is determined by a natural logarithm of market value of equity at the end of a fiscal year. Small firms relative to large firms face higher business risks since the former may have lower efficiency in terms of capitals, technology, and management. Investors thus expect higher rates of returns for small firms, and consequently higher costs of equity capital. Firm size is expected to negatively correlated with the implied costs of equity capital (J. Francis et al. (2004); Chan et al. (2009); Lara et al. (2011)).

Financial leverage (LEV) is a ratio of long-term debts to total assets at the end

of a fiscal year. A firm's costs of equity are an increasing function of the amounts of

debts in its capital structure (Gebhardt, Lee, and Swaminathan (2001)). A firm's

capital structure with high debts reflects the existence of covenant restrictions about

future investments and common risks involving borrowing costs and cash liquidity.

The firm's overall costs of capital increase with higher levels of financial leverage.

Thus, financial leverage is anticipated to positively correlated with the implied costs

of equity capital (Ahmed et al. (2002); Chan et al. (2009); Li (2010); Lara et al. (2011)).

Book-to-market value of equity (BTM) is a ratio of book value to market value

of equity at the end of a fiscal year. This ratio reflects the book value of equity

relative to the expectations of the markets. A low ratio suggests that a stock is

overvalued; thus, investors will require a lower rate of return. On the other hand, a

high ratio reflects the undervaluation of a stock, so the investors will demand a

higher rate of return for them to invest in the stock. Book-to-market value of equity

is predicted to positively correlated to the implied costs of equity capital (Li (2010);

Lara et al. (2011)).

Return volatility (RVOLAT) is measured by the standard deviation of one-year

daily stock returns. Stock return volatility as a firm risk factor reflects high levels of

information asymmetry in the capital market, making it difficult for uninformed

investors to predict future stock prices. The investors thus require a high risk

premium to compensate for the price volatility. Return volatility is expected to

positively correlated with the implied costs of equity capital (Li (2010); Lara et al.

(2011)).

Earnings volatility (EVOLAT) is calculated by dividing the standard deviation of

annual earnings by the mean over the last five years. Earnings volatility reflects the

volatility of business and the variability of macro-economy (Jennifer R. Francis,

Khurana, and Pereira (2005)). Uninformed investors require a high rate of return for

the stock with unpredictable earnings. Earnings volatility is expected to be positively

related to the implied costs of equity capital (Gebhardt et al. (2001); Chan et al.

(2009); Li (2010)).

4.7 Endogeneity Problems

Endogeneity exists when the explanatory variable is correlated with the

disturbance term [$Cov(x_i, \varepsilon_i) \neq 0$]. The endogeneity problem can be attributed to, for

instance, omitted variable, measurement error, simultaneous causality, or

predetermined variable/dynamic regression. The impact of endogeneity is a bias in

estimates, leading to rejecting a hypothesis that is in fact true (Type I Error) or

accepting a hypothesis that is in fact false (Type II Error).

In this research, the regression model of H1 is $IOS_{i,t} = \alpha_0 + \alpha_1 CONS_{i,t} +$

$\sum_{m=2}^{M} \alpha_m Control_{m,i,t} + \varepsilon_{i,t}$, where it is possible for the accounting conservatism

(CONS) variable to: (1) have error in measurement since stock returns that are an

endogenous variable are used as a regressor in the reverse regression of the Basu

model, and/or (2) be predetermined since CONS is correlated with lagged values of

the structural error [Cov($CONS_{i,t}$, $\varepsilon_{i,t-1}$) $\neq$ 0]. It is assumed in this research that the

control variables ($Control_{m,i,t}$) are exogenous.

The use of instrumental variable (IV) is a possible solution to the problem of

endogenous explanatory variable in which the CONS variable is likely to contain

measurement error and is endogenously determined. The instruments are exogenous

variables that explain a variable suspected of being endogenous, i.e. the CONS

variable, and that are correlated with the CONS variable but are uncorrelated with

the disturbance term (ε_i). The selection of potential IVs is mostly based on prior

empirical literature and theory.

The concept of IV estimation is known as two-stage least squares (2SLS). In the first stage, CONS is regressed on the potential IVs to obtain the fitted value of accounting conservatism ($\widehat{CONS}$) that will subsequently serve as the instrument for CONS. In the second stage, $\widehat{CONS}$ is substituted for CONS in the regression model of H1 in which future investment opportunities are regressed on the predicted value of accounting conservatism.

In the first stage of the IV estimation, CONS is regressed on the instrumental variables. The instrumental variables in this study are from previous research works on the determinants of accounting conservatism. Since a growing number of determinants of accounting conservatism are continuously documented, only commonly used factors in the existing body of literature are included in this research work to explain CONS. The first-stage regression model is performed as follows:

$$CONS_{i,t} = \beta_0 + \beta_1 CEOPOW_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 AUDCOM_{i,t}$$
$$+ \beta_4 AGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 BTM_{i,t}$$
$$+ \beta_8 RVOLAT_{i,t} + \nu_{i,t}$$

where CONS is the degree of conservatism from the Basu model (the relative sensitivity of earnings to losses vis-à-vis the sensitivity of earnings to gains). The instrumental variables consist of two sets of firm characteristics as follows:

First, audit quality and the board's effectiveness and independence drive demand for firms' conservatism (Ahmed and Duellman (2007); Lara, Osma, and Penalva (2009); Chi et al. (2009); Grace Lee et al. (2014)). The first set of instrumental variables includes the dual roles of a chief executive officer by a dummy variable coded one if the chief executive officer or CEO also serves as a chairman of the board, and zero otherwise (CEOPOW), reputable auditor by a dummy variable coded one if a firm employs a brand name audit company, and zero otherwise (BIG4), and the number of independent audit committees relative to total board members (AUDCOM). High quality of auditors (i.e. the brand name audit company) and independence of audit committee (i.e. the proportion of independent audit committee to total board) lead to the adoption of more conservatism by the firms. In contrast, more aggressive accounting practice is introduced by the firms with the dual role of their CEO (i.e. the couple of chairman and CEO compositions)[21].

The second set of firm characteristics driving demand for conservatism involves with firm age, debt financing, size, growth, and uncertainty. This set consists of the number of years after initial public offering or IPO (AGE), long-term debt

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[21] Institutional ownership also influences firms' accounting conservatism. However, data on percentage of shares held by institutional investors are available only for listed firms with greater than or equal to five percent of institutional investors. Since those listed firms constitute three percent of the final samples, this paper thus excludes the institutional ownership variable from the first-stage regression.

divided by total assets at the end of a fiscal year (LEV), the market value of equity

scaled by total assets at the end of a fiscal year (SIZE), the ratio of book-to-market at

the end of a fiscal year (BTM), and the standard deviation of daily stock returns over

a fiscal year (RVOLAT). Conservatism is decreasing in firm age (AGE) and increasing in

firm-specific uncertainty (RVOLAT) and growth options (BTM), as reported by

Ramalingegowda and Yu (2012) . Leverage (LEV) reflects the demand from debt

holders for conservatism arising from shareholders- debt holders conflicts (Hui, Klasa,

and Yeung (2012)). Firms size (SIZE) that reflects information asymmetry induces

conservatism (Hui et al. (2012); Ramalingegowda and Yu (2012)).

In the second stage of the IV estimation, the fitted value of the conservatism

degree ($\widehat{CONS}$) from the first stage regression is substituted for CONS in the regression

models of H1 and H2. Tests for endogeneity in accounting conservatism are essential

to ensure that accounting conservatism is statistically correlated with the error terms,

and hence using of the IV estimation.

4.8 Tests for Endogeneity

The use of instrumental variables to correct endogeneity in accounting

conservatism inflates the variances of the estimators and reduces the ability to make

inferences from the estimates. Hence, this current research study applies the tests

for endogeneity, developed by Wooldridge (2002)[22], to verify whether accounting

conservatism is an endogenous variable. The tests are based on an assumption that

an explanatory variable is endogenous if it is correlated with the error terms. The

tests are carried out using a linear model with one possibly endogenous variable (y_2)

[$Cov(y_2, \varepsilon_1) \neq 0$] and other exogenous explanatory variables (x_m) [$Cov(x_m, \varepsilon_1) = 0$], as

shown below:

$$y_1 \qquad = \qquad \alpha_0 + \alpha_1 y_2 + \sum_{m=2}^{M} \alpha_m x_m + \varepsilon_1 \qquad \text{(a)}$$

The endogeneity of y_2 is present if y_2 is correlated with the residuals, ε_1, i.e.

$Cov(y_2, \varepsilon_1) \neq 0$. To test for the endogeneity, y_2 has to be estimated (the first stage) as

below:

$$y_2 \qquad = \qquad \beta_0 + \beta_1 z_1 + \beta_2 z_2 + ... + \beta_n z_n + \nu_2 \qquad \text{(b)}$$

In equation (b), $z_1, z_2, ..., z_n$ are exogenous variables (instrumental variables)

that are not correlated with ν_2, i.e. $Cov(z_n, \nu_2) = 0$. Equation (b) allows for a

computation of OLS residuals, $\widehat{\nu_2}$. $\widehat{\nu_2}$ is part of y_2 and is uncorrelated with $z_1, z_2, ...,$

z_n. If the problem of endogeneity of y_2 exists in equation (a), it is attributable to the

fact that $Cov(\nu_2, \varepsilon_1) \neq 0$. It is impossible to observe ν_2, but it is possible to compute

an estimate of ν_2, i.e. $\widehat{\nu_2}$. $\widehat{\nu_2}$ is then included as an additional regressor in the OLS

model as below:

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[22] The endogeneity test or Wu-Hausman test.

$$y_1 \quad = \quad \alpha_0 + \alpha_1 y_2 + \sum_{m=2}^{M} \alpha_m x_m + \delta \widehat{v_2} + \omega \qquad (c)$$

In equation (c), testing for the significance of δ will confirm whether the endogeneity of y_2 exists. If $Cov(v_2, \varepsilon_1) = 0$, the estimate of δ should be close to zero. In such a case, there is no evidence that y_2 is endogenous in the original equation, and thus OLS should be applied. If a null hypothesis in which $\delta = 0$ is rejected (there is an evidence that y_2 is endogenous), it is advisable not to use the OLS estimates but use the IV (2SLS) estimates.

This study uses Wooldridge (2002)'s endogeneity test to examine whether accounting conservatism (CONS) is endogenous in model (a.1). By equation (b.1), CONS is regressed on instrumental variables to obtain the residuals ($\hat{v}$). Then, $\hat{v}$ is included as an additional regressor in model (c.1).

$$IOS_{i,t} \quad = \quad \alpha_0 + \alpha_1 CONS_{i,t} + \sum_{m=2}^{M} \alpha_m \, Control_{m,i,t} + \varepsilon_{i,t} \qquad (a.1)$$

$$CONS_{i,t} = \quad \beta_0 + \beta_1 CEOPOW_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 AUDCOM_{i,t}$$

$$+ \beta_4 AGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 BTM_{i,t}$$

$$+ \beta_8 VOLAT_{i,t} + v_{i,t} \qquad (b.1)$$

$$IOS_{i,t} \quad = \quad \alpha_0 + \alpha_1 CONS_{i,t} + \sum_{m=2}^{M} \alpha_m \, Control_{m,i,t} + \delta \hat{v}_{i,t} + \omega_{i,t} \quad (c.1)$$

The endogeity tests are operated for each measure of IOS (i.e. arMBE, GRMVA, EP, VAR, and RANK). The null hypothesis is that the CONS variable is exogenous (H_0: δ = 0). If the null hypothesis is not rejected, then there is no evidence of endogeneity in accounting conservatism in the models and thus the OLS estimates are utilized in testing of H1 and H2. On the other hands, the rejection of the null hypothesis implies that there is evidence of endogeneity in accounting conservatism in the models and thereby the IV (2SLS) estimates are used in the H1 and H2 tests. Therefore, the regression models of the H1 and H2 with the IV estimates become as follows.

H1 (IV):

$$IOS_{i,t} = \alpha_0 + \alpha_1\widehat{CONS}_{i,t} + \alpha_2DIVPAY_{i,t} + \alpha_3STOCKTURN_{i,t}$$
$$+ \alpha_4PROFIT_{i,t} + \alpha_5SIZE_{i,t} + \alpha_6MKCON_{i,t} + \alpha_7EXPENS_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t} \qquad (1)$$

H2 (IV):

$$rPEG_{i,t} = \alpha_0 + \alpha_1\widehat{CONS}_{i,t} + \alpha_2SIZE_{i,t} + \alpha_3LEV_{i,t} + \alpha_4BTM_{i,t}$$
$$+ \alpha_5RVOLAT_{i,t} + \alpha_6EVOLAT_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t} \qquad (2.1)$$

$$RANK_{i,t} = \alpha_0 + \alpha_1rPEG_{i,t} + \alpha_2DIVPAY_{i,t} + \alpha_3STOCKTURN_{i,t}$$
$$+ \alpha_4PROFIT_{i,t} + \alpha_5SIZE_{i,t} + \alpha_6MKCON_{i,t} + \alpha_7EXPENS_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t} \qquad (2.2)$$

In the regression model (1) and (2.1), $\widehat{CONS}_{i,t}$ is the estimated value of conservatism degree for firm i in year t from the first-stage regression model (in section 4.7). Definitions of all variables are similar to those with the OLS estimates (in section 4.5 and 4.6).

CHAPTER 5

EMPIRICAL RESULTS

This chapter provides a description of the empirical results. First, this chapter describes sample selection, final sample breakdown by industry and year, and descriptive statistics of variables in the regression models as well as instrumentals variables. Next, the results of endogeneity tests, H1 tests, and H2 tests are presented. Lastly, this chapter provides the results of additional and robustness analysis.

5.1 Sample Description

Panel A of Table 1 presents the selection of samples and the procedures by which the final sample number is derived. The initial sample set consists of 3,301 firm-year observations from the Stock Exchange of Thailand (SET) during the years 2005-2011. 219 firm-year observations under non-compliance (NC) and non-performing group (NPG) or rehabilitation firms are excluded from the initial sample set due to the unavailability of stock returns data. Additional 437 firm-year observations in the financial industry (three sectors, i.e. banking, finance and securities, and insurance) are excluded as the industry is under different financial reporting requirements and accounting rules of either the Bank of Thailand or the Department of Insurance. In addition, to ensure that the sampled firms are subject to

similar market conditions, 156 firm-year observations whose fiscal year-ends fall

outside the December month are excluded, while unavailable or incomplete data

necessitate the removal of additional 995 firm-year observations from the initial set.

The data incompleteness is attributable to the requirements for data on stock

returns, closing prices, and annual earnings eight years prior[23]. A final set of 97 firm-

year observations with unusual data as determined by studentized residuals, hat

values, and Cook's distance measures[24] is taken out. Unusual data are observations

that are extreme or appear inconsistent with the remaining data. This leaves the final

sample of 1,397 firm-year observations (56.1%) or 292 firms[25].

Panel B of Table 1 is a breakdown of the samples by seven industry groups

for a total period of seven years. The seven industry groups, according to the SET,

are agriculture and food, consumer products, industrials, property and construction,

resource, services, and technology. Each industry consists of sufficient samples to

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[23] Since this research covers the period of 2005-2011, data on stock returns, closing prices and annual earnings to calculate the degrees of accounting conservatism since 1998 are used.

[24] Unusual data consists of (1) outlying observations with an unusual value of dependent variables, (2) high leveraged observations with an extreme value of independent variables, and (3) influential observations with an unusual value of both independent and dependent variables. The outlying observations whose studentized deleted residuals are greater than +/- 4.279, the high leveraged observations whose hat values are higher than 0.011, and the influential observations whose Cook's distance measures are greater than 0.003 are removed from the regressions. Unusual observations cause bias or distortion of estimates and inflated sum of squares.

[25] The number of final samples in each regression model is different as it depends on the requirement for specific data and the removal of unusual data. The 1,397 final samples are based on the regression model of RANK.

control for the industry effect. The majority of samples in this study belong to the property and construction (21.7%), services (19.1%), and industrials (18.9%) sectors, respectively. The number of firms is fairly dispersed over the seven-year period (from 11.9% in 2005 and 2006 to 18.2% in 2011) and is sufficient to control for the year effect. Furthermore, the number of firms is also adequately scattered in every industry and year.

5.2 Descriptive Statistics

Table 2 presents descriptive data for the sample firms averaged over the seven-year period. The variables are classified into four groups: dependent, interested, mediating, and control and instrumental variables. The first group of variables consists of the market-to-book of equity ratio (MBE), the absolute values of residuals of market-to-book of equity ratio (arMBE), the three-year geometric mean annual growth rate of market value of assets (GRMVA), the earnings-to-price ratio (EP), the annualized variance of return on market value of assets at least four annual observations ending 1998 (VAR), and the average of corresponding decile ranks of arMBE, GRMVA, EP, and VAR (RANK). The group of interested variables encompasses the degree of accounting conservatism (CONS), the estimated value of the accounting conservatism degree ($\widehat{CONS}$). Mediating variable is the implied cost of equity capital (rPEG).

The last group of variables comprises the ratio of annual dividend payment to annual earnings before extraordinary items (DIVPAY), the number of common shares traded scaled by the number of common shares outstanding in a fiscal year (STOCKTURN), the ratio of annual operating incomes to total assets (PROFIT), a natural logarithm of annual sales (SIZE), the ratio of a firm's annual revenues to total industry revenue (MKCON), annual selling and administrative expenditures divided by annual sales (EXPENS), the ratio of long-term debts to total assets at the end of a fiscal year (LEV), the ratio of book-to-market at the end of a fiscal year (BTM), the standard deviation of daily returns over a fiscal year (RVOLAT), the standard deviation of annual earnings scaled by total assets over the last five years (EVOLAT), a dummy variable coded one if the chief executive officer is the board chairperson, and zero otherwise (CEOPOW), a dummy variable coded one if a firm engages the services of brand name audit companies, and zero otherwise (BIG4), the ratio of independent audit committee members to total board members (AUDCOM), and the number of years after initial public offering (AGE).

As presented in Table 2, the mean and median of MBE are 1.035 and 0.857, while those of arMBE are 0.441 and 0.373. The MBE figures suggest that, on average, the market values of SET-listed firms are very close to their respective book values. In other words, Thai stocks are relatively underpriced. In general, the market-to-book

ratios that are higher than two indicate that firm value is accounted for by the proportion of larger values from future investment opportunities than values from assets-in-place. The MBE in the 85th (not reported) percentile is approximately two, suggesting that there are approximately 15 percent of Thai listed firms whose value is significantly accounted for by the value of future investment opportunities vis-à-vis the value of assets-in-place. The mean and median of GRMVA are 0.417 and 0.351, indicating that the average growth rate of market value of assets (and hence growth opportunity) for Thai listed firms is 41.7 percent. The mean and median of EP are 0.112 and 0.099, respectively. The mean EP indicates that the average value from assets-in-place as reflected by earnings is 11.2 percent of total value of firms as represented by prices. The mean and median of VAR are 0.170 and 0.076, respectively, and the distribution of VAR is positively skewed.

For the interested variables, the mean and median of CONS are -0.031 and 0.214. The CONS values in quartiles one and three are -1.694 and 2.751, respectively, which are comparable to those in Zhang (2008)[26]. The number of samples with a positive value of conservatism degree[27] is slightly higher than those with a negative

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[26] According to Zhang (2008), the conservatism levels in the first and third quartiles are -1.52 and 3.24, respectively. The mean and median of the conservatism levels reported by Zhang are 1.30 and 0.62, respectively.

[27] 769 firm-year observations have a positive value of conservatism degree, whereas 625 firm-year observations have a negative value of conservatism degree.

value of conservatism degree, suggesting a similarity between the number of Thai

listed firms that promptly recognize losses in their earnings reports and those that

are slow in loss recognition. However, there is a large variation in conservatism

degrees during the study period because of the fluctuation of stock returns used for

calculation of the conservatism degrees[28]. Comparatively, the mean, median, value

in the first quartile, value in the third quartile, and standard deviation of $\widehat{CONS}$ and

CONS are -0.031 and -0.031; -0.289 and 0.214; -4.107 and -1.694; 3.608 and 2.751; and

121.011 and 6.033, respectively. These figures suggest that, relative to the actual

values of conservatism degree, the estimated values exhibit more normal distribution

and lower standard deviation. For the mediating variable, the mean and median of

rPEG are 0.150 and 0.119, respectively, indicating that the expected costs of equity

for Thai firms are comparable to those for US firms (mean=0.121, median=0.106), as

reported by Artiach and Clarkson (2010).

For the control and instrumental variables, the mean and median of DIVPAY

of 0.389 and 0.384 are almost identical, suggesting that on average the sampled firms

distributed approximately 38 percent of their reported annual earnings as

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[28] When the five highest and lowest values of conservatism degree are excluded, the standard deviation is reduced from 121.011 to 38.033.

dividends[29]. The mean and median of STOCKTURN are 0.923 and 0.234, respectively,

indicating positive skewness. The third quartile value of STOCKTURN of 1.033 suggests

that one-fourth of the sampled firms exhibit the ratio of traded shares to outstanding

shares that is higher than one (high share liquidity). The mean and median of PROFIT

are identical at 0.042, showing that the sampled firms on average generated

operating incomes on the order of four percent from total assets. The average

natural logarithm of SIZE is 21.802, suggesting that the sampled firms' annual sales

are roughly 2.9 billion baht. The first and third quartile values of MKCON are 0.002

and 0.016 respectively, indicating that half the sampled firms capture between 0.2 -

1.60 percent of total market shares of their respective industries. The average

EXPENS of 0.167 reveals that on average the selling and administrative expenses

account for approximately 16.7 percent of the sampled firms' annual sales.

The average LEV of 0.247 manifests that on average the sampled firms

finance about 24.7 percent of their total assets with debts. The average standard

deviation of daily returns in a fiscal year or RVOLAT is 0.028. The average standard

deviation of annual earnings over the last five years or EVOLAT is 0.317. The average

CEOPOW is 0.245, suggesting an incidence of CEO duality in a quarter of the sampled

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[29] According to Chang (2009), the average ratio of dividend payout of Taiwan listed firms was 53 percent of annual earnings during 2002-2007.

firms. The CEO duality occurs when a CEO is also the chairman of the board of the

same company. The average BIG4 is 0.579, indicating that almost three-fifths of the

sampled firms engaged the services of brand name audit firms. The mean of

AUDCOM is 0.293, indicating that the number of independent audit committee

members accounts for 29.3 percent of firms' total board. The mean, first and the

third quartiles of AGE are 17.061, 13.500, and 19.833, respectively, suggesting that

one-fourth of the sampled firms have been listed on the Stock Exchange of Thailand

for nearly two decades (20 years).

Table 3 presents the Pearson and Spearman correlation matrix for

dependent, interested, mediating, and control variables. Above the diagonal are the

Pearson correlation coefficients while below the diagonal are the Spearman

correlation coefficients. Since the Pearson and Spearman correlations are mostly

consistent, this research focuses on the former for the sake of discussion. For the

dependent variables (arMBE, GRMVE, EP, VAR, RANK), positive correlations exist

between GRMVA and arMBE (0.111), VAR and GRMVE (0.086), RANK and arMBE (0.313),

RANK and GRMVE (0.282) and RANK and VAR (0.221). On the other hand, negative

correlations are found between EP and arMBE (-0.186), EP and GRMVE (-0.086) and

RANK and EP (-0.476)[30]. The significant correlations between the dependent variables indicate that they are related to each other as all of them are measures of future investment opportunities.

In case of the dependent and interested variables (arMBE, GRMVE, EP, VAR, RANK, CONS, $\overline{\text{CONS}}$), $\overline{\text{CONS}}$ is positively correlated with arMBE (0.072), GRMVA (0.053), and RANK (0.092), and negatively correlated with EP (-0.134) as shown in Spearman correlation. For Pearson correlation, $\overline{\text{CONS}}$ is positively correlated with arMBE (0.052), GRMVA (0.070), and RANK (0.099); and CONS is positively correlated with VAR (0.050). Overall, those figures indicate that higher value of conservatism presents with higher investment opportunity.

With the interested and control variables (CONS, $\overline{\text{CONS}}$, DIVPAY, STOCKTURN, PROFIT, SIZE, MKCON, and EXPENS), $\overline{\text{CONS}}$ is positively correlated with SIZE (0.165) and with MKCON (0.153), suggesting that large firms and those with substantial market shares are prompt in recognition of losses in their reported earnings. DIVPAY is positively correlated with PROFIT (0.275), showing that dividend payments to shareholders is positively correlated with profitability. PROFIT exhibits a positive

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[30] EP is inversely related to other dependent variables since it follows that the higher the EP ratio, the lower the investment opportunities.

correlation with SIZE (0.309), indicating that profitability is positively correlated with firm size. PROFIT exhibits a negative correlation with EXPENS (-0.381), indicating that profitability is negatively correlated with advertising and selling activities. SIZE exhibits a negative correlation with EXPENS (-0.471), indicating that firm size is negatively correlated with advertising and selling activities. MKCON exhibits a negative correlation with EXPENS (-0.229), suggesting that firms' market shares are negatively correlated with advertising and selling activities.

Of the mediating and control variables (rPEG, LEV, BTM, RVOLAT, and EVOLAT), rPEG exhibits positive and negative correlations with BTM (0.463) and RVOLAT (-0.126), respectively, indicating that the implied costs of equity capital are positively correlated with the the ratio of book-to-market and negatively correlated with the standard deviation of daily returns. BTM exhibits a negative correlation with RVOLAT (-0.226), indicating that the ratio of book-to-market is negatively correlated with the standard deviation of daily returns.

One problem in regression analysis is multicollinearity in which some independent variables are highly correlated. Multicollinearity contributes to unstable coefficient estimates and large standard errors. The presence of multicollinearity in this research is determined by variance inflation factors (VIFs). As a rule of thumb, the

regressor variables have the multicollinearity problem when their VIF is greater than 10 (Montgomery, Peck, and Vining (2001); Grace Lee et al. (2014)). The tests (not reported) show that the VIF of each independent variable is within the cut-off point (10), indicating that this study does not suffer from the multicollinearity problem[31].

5.3 Tests for Endogeneity

Table 4 presents tests for endogeneity in accounting conservatism or CONS. The CONS variable could encounter the endogeneity problem due to either measurement errors or a predetermined variable or both. The endogeneity in CONS exists when the correlations between CONS and the disturbance terms in the models of association between accounting conservatism and future investment opportunities are present [$Cov(CONS_i, \varepsilon_i) \neq 0$]. The correlation tests are carried out by first regressing CONS on the instrumental variables to obtain the estimated residuals $(\hat{v}_i)$[32]. Then, the estimated residuals as an additional regressor are plugged into the models of association between accounting conservatism and future investment opportunities. The statistical significance of the coefficients on the estimated

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[31] The VIFs of the independent variables in all regression models of this research study are not greater than 3.080. In case of the Pearson correlation between SIZE and MKCON (0.649), the VIFs of the SIZE and MKCON are 2.306 and 3.080, respectively.

[32] Since the estimated residuals (the error terms) are part of CONS, the statistical significance of these residuals indicates the existence of a correlation between CONS and the error terms or endogeneity problem in CONS. See details in Chapter 4.

residuals ($\delta_8\hat{v}$) implies that CONS is correlated with the disturbance terms in the models; therefore, accounting conservatism is endogenous. This research study has performed endogeneity tests for all five models (arMBE, GRMVA, EP, VAR and RANK) since different measures of dependent variables (future investment opportunities) could produce different results of correlations between CONS and the disturbance terms.

The endogeneity tests are presented by five columns with five models (arMBE, GRMVA, EP, VAR and RANK) in Table 4, and the testing variables are $\hat{v}$ (δ_8=0). The F-statistics of all five regression models are significant at the 0.01 level, and the adjusted R^2 for the regression models of arMBE, GRMVA, EP, VAR and RANK are 0.0378, 0.0889, 0.1916, 0.0500 and 0.0716, respectively. The results of the endogeneity tests show that the coefficients on the estimated residuals ($\delta_8\hat{v}$) are statistically significant (at the 0.01 level) for the models of arMBE, EP and RANK, suggesting that the correlations between CONS and the disturbance terms exist and so does the endogeneity in CONS. In other words, accounting conservatism is endogenously determined in the models in which the future investment opportunities are measured by the absolute value of residuals of market-to-book of equity ratio (arMBE), earnings-to-price (EP), and the aggregated measure (RANK). To address the endogeneity problems, the instrumental variables (IV), or the two-stage

least square (2SLS) regressions, are applied to testing H1 and H2 in the models of arMBE, EP and RANK.

However, insignificant coefficients on $\delta_8 \hat{v}$ in the measures of GRMVA and VAR suggest that CONS is not endogenously determined in the models in which the investment opportunities are measured by the three-year geometric mean annual growth rate of market value of assets (GRMVA) and annualized variance of return on market value of assets (VAR). The endogeneity problems are not present for these two models (i.e. GRMVA and VAR) due to the absence of statistical evidence of the correlations between accounting conservatism and the disturbance terms in the models. Therefore, the ordinary least squares (OLS) regressions are used to testing the hypotheses in the models of GRMVA and VAR.

Another possible explanation for different results of endogeneity tests is that the five measures of investment opportunities are under different underlying assumptions that result in different disturbance terms used for the endogeneity test. In comparison with the measures of GRMVA and VAR, the MBE and EP measures are more straightforward to capture investment opportunities. This is because MBE and EP reflect only the value of investment opportunities, while GRMVA and VAR reflect

the growth rate and the variability of securities prices that consist of values from

both investment opportunities and assets-in-place.

5.4 Tests for H1

H1 hypothesizes that accounting conservatism through timely loss recognition

is positively associated with future investment opportunities. Table 5 presents the

results of the H1 tests in four models with the four individual measures of future

investment opportunities (i.e. arMBE, GRMVA, EP, and VAR). Table 6 presents the

results of the H1 tests in the model with the aggregated measure of future

investment opportunities (i.e. RANK). Based on the earlier endogeneity tests, the

models in which future investment opportunities are measured by arMBE, EP, RANK

are analyzed by IV (2SLS) estimates, while those in which future investment

opportunities are measured by GRMVA and VAR are analyzed by OLS estimates. The

predicted signs, the parameter estimates and the p-values of all models are provided

in their respective first, second and third columns. All models include the year and

industry fixed effects as well as control variables.

In Table 5, except for the GRMVA model, the coefficients on CONS/$\widehat{\text{CONS}}$ are

statistically significant (at the 0.01 level) in all models with the predicted signs, thus

supporting H1. The coefficients on CONS/$\widehat{\text{CONS}}$ in the arMBE, EP, and VAR models

are 0.0091, -0.0018, and 0.0003, respectively, suggesting that, e.g. in the case of the

arMBE model, when the estimated values of accounting conservatism increase by

one degree, the absolute value of residual of market-to-book of equity rises by

0.0091, ceteris paribus. The F-statistics of all regression models are significant (at the

0.01 level), indicating that the regression models are statistically valid. The adjusted

R^2, e.g. in the EP model, is 0.3211, which means that the explanatory variables are

able to explain the dependent variables by 32.11%. Based on the results of the four

individual measures of future investment opportunities in Table 5, three models, i.e.

arMBE, EP and VAR, are consistent with H1.

In Table 6, the coefficients on $\widehat{CONS}$ are statistically significant (at the 0.01

level) with the predicted signs, thus supporting H1. The coefficient on $\widehat{CONS}$ in the

RANK model is 0.0262, suggesting that when the estimated values of accounting

conservatism increase by one degree, the average decile rank of future investment

opportunities rises by 0.0262, ceteris paribus. The F-statistic of the regression model

is significant (at the 0.01 level), indicating that the regression model is statistically

valid. The adjusted R^2 of the RANK model is 0.1799, which means that the

explanatory variables are able to explain the dependent variables by 17.99%.

Overall, as shown in Table 6, the results of the model, i.e. RANK, that uses the

aggregated measure of future investment opportunities are consistent with H1.

For the control variables (Tables 5 and 6), the coefficients on DIVPAY, STOCKTURN, and SIZE are generally consistent with the predictions across the models (statistical significance at the 0.05 level or better), hence indicating that dividend payments, share turnover, and firm size are positively associated with future investment opportunities.

The positively statistical significance of the coefficient on DIVPAY (in the GRMVA, EP, and RANK models) suggests that firms' dividend announcements reflect investors' current and/or future cash flow expectations, consistent with the cash flow signaling hypothesis in Yoon and Starks (1995). In other words, investors anticipate growth opportunities for firms with higher dividend payments. The positively statistical significance of the coefficient on STOCKTURN (in the GRMVA and VAR models) indicates that a rise in stock liquidity captured by the ratio of traded shares to outstanding shares increases the number of positive NPV projects as a result of lower costs of capital, consistent with Becker-Blease and Paul (2006). The positively statistical significance of the coefficient on SIZE (in the arMBE and GRMVA models) suggests that larger firms are in a better position to locate new investment projects, consistent with Chauvin and Hirschey (1993).

Collectively, H1 is supported by four models of testing (i.e. the three models of the individual measures and the model of the aggregated measure), indicating that Thai firms' accounting conservatism through timely loss recognition is positively related to their future investment opportunities. In addition, dividend announcement, liquidity of equity stock, and firm size have the positive effects on future investment opportunities.

5.5 Tests for H2

H2 hypothesizes that accounting conservatism is positively and indirectly associated with the aggregated measure of future investment opportunities through the cost of equity capital. H2.1 hypothesizes that accounting conservatism is negatively associated with the implied cost of equity capital, and H2.2 hypothesizes that the implied cost of equity capital is negatively associated with the aggregated measure of future investment opportunities. The indirect effects (H2) are quantified as a product of statistically significant coefficients from H2.1 and H2.2. Tables 7 and 8 present the results of H2.1 and H2.2, respectively. The aggregated measure (RANK) of future investment opportunities is used for testing H2. All models include the year and industry fixed effects as well as control variables.

In Table 7, the coefficient on $\widehat{CONS}$[33] is negative as predicted but

insignificant, thus not supporting H2.1. The F-statistic of the regression model is

significant (at the 0.01 level), indicating that the regression model is statistically valid.

The adjusted R^2 is 0.2370, which means that the explanatory variables are able to

explain the dependent variables by 23.70%.

For the control variables, the coefficients on SIZE, LEV, and BTM are generally

consistent with the predicted signs (statistical significance at the 0.05 level or better).

The results show that firm size is negatively associated with the implied cost of

equity capital, and that financial leverage and the ratio of book-to-market are

positively associated with the implied cost of equity capital, consistent with the

works of Chan et al. (2009), Artiach and Clarkson (2010), and Lara et al. (2011).

The negatively statistical significance of the coefficient on SIZE suggests that

investors require a lower rate of return for large firms relative to small firms. Large

firms tend to have less business risk due to higher efficiency of capitals, technology,

and management. The positively statistical significance of the coefficient on LEV

suggests that firms' capital structure with high debts has higher costs of equity

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[33] Based on the endogeneity tests, accounting conservatism is endogenous in the RANK model, thus $\widehat{CONS}$ is used for testing H2.

capitals as it reflects covenant restrictions to future investment projects and

common risks to liquidity. The positively statistical significance of the coefficient on

BTM indicates that firms with higher book-to-market ratios have higher costs of equity

capital. The higher the ratios, the more undervalued the stocks are, so investors can

demand a higher rate of return for those stocks.

In Table 8, the coefficient on rPEG is statistically significant (at the 0.05 level)

with the predicted sign, thus supporting H2.2. The coefficient of rPEG is -1.2719,

suggesting that when the implied cost of equity capital increases by one unit (100

percent), the average decile rank of future investment opportunities decreases by

1.2719, ceteris paribus. The F-statistic of the regression model is significant (at the

0.01 level) and the adjusted R^2 is 21.79%. For the control variables, the coefficients

on DIVPAY, STOCKTURN, and SIZE are statistically significant with the predicted signs,

consistent with those results in H1 (Tables 5 and 6). Furthermore, the coefficient on

MKCON is negative and statistically significant (at the 0.01 level), indicating that

market share is negatively associated with future investment opportunities.

Based on Tables 7 and 8, H2, which predicts the indirect effect of accounting

conservatism on the aggregated measure of future investment opportunities through

the implied cost of equity capital, is not supported due to a lack of statistically

significant results in H2.1. However, the results in Table 8 provide new evidence on

the association between the implied cost of equity capital and future investment

opportunities, supporting the theoretical model in firm valuation and the empirical

literature in Weiqi (2014). In addition, this research study provides the evidence under

the Thai setting to the relationships between firm characteristics (i.e. size, leverage,

and the book-to-market ratio) and the implied costs of equity capital.

5.6 Additional and Robustness Analysis

5.6.1 Controlling for Information Asymmetry

Additional analysis for H1 is performed by controlling for information

asymmetry and examining the impact of increase in information asymmetry on the

relationship between accounting conservatism and the aggregated measure of future

investment opportunities. Information asymmetry is measured by the annual average

of the daily ask-bid spreads scaled by closing prices (ASYM). Generally, stock prices

can be affected by information asymmetry between firm insiders (e.g. managers,

informed investors) and outsider equity investors. A manager can exploit his

information advantages to shift wealth from investors to himself by increasing

reported gains and/or reducing reporting losses. The manipulations of earnings result

in deadweight losses and reduce firms' cash flows and stock prices. Furthermore, the

greater private information of informed investors as reflected by larger ask-bid

spreads results in lower returns to uninformed investors and higher equilibrium

required returns for the stocks.

Table 9 presents the results of the additional test of H1 by including ASYM

and $\widehat{CONS}$*ASYM (the interaction terms between accounting conservatism and

information asymmetry) into the RANK model. Column (1) presents the results of

controlling for ASYM, and column (2) presents the results of the impact of ASYM on

the relationship between accounting conservatism and the aggregated measure of

future investment opportunities. All regression models include the year and industry

fixed effects as well as the control variables.

In Table 9, column (1) shows that the coefficient on $\widehat{CONS}$ is positive and

statistically significant (at the 0.01 level) when the regression model is controlled for

ASYM, thus holding for H1. The coefficient on ASYM is negative and statistically

significant (at the 0.1 level), suggesting that information asymmetry decreases the

average decile rank of future investment opportunities. The F-statistic of the

regression model is significant (at the 0.01 level), indicating that the regression model

is statistically valid. The adjusted R^2 is 0.1811, which means that the explanatory

variables are able to explain the dependent variables by 18.11%.

Column (2) of Table 9 shows that the coefficient on $\overline{CONS}$*ASYM is insignificant, indicating that increase in information asymmetry does not affect the relationship between accounting conservatism and the average decile rank of future investment opportunities. The F-statistic of the regression model is significant (at the 0.01 level), indicating that the regression model is statistically valid. The adjusted R^2 is 0.1933, which means that the explanatory variables are able to explain the dependent variables by 19.33%.

In conclusion, accounting conservatism is still positively associated with the aggregated measure of future investment opportunities when the ask-bid spreads as a proxy for information asymmetry are included in the regression model for testing H1 (the RANK model). Moreover, increases in the ask-bid spread do not affect the relationship between accounting conservatism through timely loss recognition and investment opportunities.

5.6.2 Alternative Proxy for Future Investment Opportunities

Robustness analysis for H1 is operated by using an alternative proxy of future investment opportunities. While the findings are consistent with the H1, it is possible that the proxies of future investment opportunities based on market expectation (arMBE, GRMVA, EP, and VAR) are capturing risks. This current research has employed

capital expenditures scaled by total assets at the end of a fiscal year (CAPX) as the

realized proxy of future investment opportunities, instead of the expected proxies by

the markets. An observable future investment opportunity set is translated into

increased capital expenditures that reflect managerial efforts to take advantage of

current investment opportunities (Denis (1994)). The higher ratio of capital

expenditures to total assets implies higher growth opportunities.

Table 10 presents the results of the robustness test of H1 using the CAPX as

the alternative proxy for future investment opportunities. Columns (1) and (2)

present the results of the CAPX model and the NEWRANK model, respectively. The

NEWRANK, another aggregated measure of future investment opportunities, is

calculated by averaging the decile ranking of five proxies, i.e. arMBE, GRMVA, EP, VAR,

and CAPX. Based on the endogeneity test, accounting conservatism is endogenous in

both the CAPX and the NEWRANK models[34]. Thus, this current research reports the

results of those two models by the IV estimates.

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[34] In the CAPX model, the CAPX is regressed on accounting conservatism, control variables, and the error terms
from the first-stage regression. The coefficient of the error terms or the testing variable ($\delta_8\hat{v}$) is statistically
significant at the 0.05 level. In the NEWRANK model, the NEWRANK is regressed on accounting conservatism,
control variables, and the error terms from the first-stage regression. The coefficient of the testing variable ($\delta_8\hat{v}$)
is statistically significant at the 0.01 level. Therefore, the IV or 2SLS estimates are used for the robustness test of
H1.

In Table 10, the coefficients on $\overline{\text{CONS}}$ are statistically significant (at the 0.01

level) in both models with the predicted signs, hence validating the robustness of

H1. The coefficients on $\overline{\text{CONS}}$ in the CAPX and the NEWRANK models are 0.0001 and

0.0014 respectively, suggesting that, e.g. in the case of the CAPX model, when the

estimated value of accounting conservatism increases by one degree, the ratio of

capital expenditures to total assets at the end of a fiscal year rises by 0.0001, ceteris

paribus. The F-statistics of the two regression models are significant (at the 0.01

level). The adjusted R^2 of the CAPX and the RANK models are 0.1370 and 0.2392,

respectively, comparable to those in Tables 5 and 6. The coefficient on MKCON is

negative and statistically significant (at the 0.01 level), confirming the results in Table

8 in that a firm's market share is negatively associated with the firm's future

investment opportunities.

In conclusion, accounting conservatism is positively associated with future

investment opportunities as measured by the realized proxy, i.e. capital

expenditures. Therefore, H1 is supported by both measures, i.e. expectation (arMBE,

GRMVA, EP, and VAR) and realization (CAPX), of future investment opportunities.

CHAPTER 6
CONCLUSIONS AND LIMITATIONS

This dissertation aims to investigate whether accounting conservatism, i.e. the timelier recognition of economic loss in earnings reports, enhances future investment opportunities or growth opportunities of Thai listed firms during the period of 2005-2011. Furthermore, it investigates the mediating role of the implied cost of equity capital on the relationship between accounting conservatism and future investment opportunities.

Ongoing debates on whether conservatism should be regarded as the practice of accounting reports motivate many accounting academics, who believe in the timely loss recognition as an efficient mechanism of firm contracting, to substantiate their beliefs with evidence of its positive economic outcomes to debt and equity markets. Empirical literature and studies on the benefits of conservatism to debt markets are plentiful (e.g. Ahmed et al. (2002); Zhang (2008)); however, its benefits to equity markets are less explored and ambiguous in the setting of emerging markets, including Thailand which is characterized by weak legal environment (Connelly et al. (2012)) and the severity of agency conflicts (Gorkittisunthorn et al. (2006)). The focus of this study is on growth opportunities since they account for a significant portion of

firms' value, especially those in emerging markets with increased foreign fund flows

and are a basis on which investors use to assess the prices of initial public offerings

(Chung and Charoenwong (1991); Chung et al. (2005)). In general, the value of a firm

consists of the values of assets-in-place and growth opportunities. The latter of

which also plays a role in ways corporate policies are formulated (e.g., Smith and

Watts (1992)).

This study argues that timelier recognition of economic loss constrains

managers' ability to withhold loss information and accelerate the realization of

unverified gains to appropriate outside shareholders' wealth. The timely loss

recognition also helps managers identify the existence of short- or long-term negative

NPV projects and thereby adopts corrective actions appropriate for the projects.

Thus, the first hypothesis is whether future investment opportunities increase in

conservative firms. In addition, uninformed investors, who generally bear high risks in

equity losses if firms' bad news accumulates to a certain threshold, require low risk

premiums from firms with timelier loss recognition for compensation and hence

there are more investment opportunities available to the firms. In this study, the

expected rate of return or the implied cost of equity capital is anticipated to play a

mediating role in the relationship between accounting conservatism and future

investment opportunities. Thus, the second hypothesis is that conservatism leads to

lower implied costs of equity which subsequently increase future investment

opportunities.

Using multiple proxies of investment opportunities derived from market

expectations and the instrumental variables for endogeneity, this study shows

evidence supporting the first hypothesis that Thai firms with a higher (lower) degree

of accounting conservatism through timely loss recognition are more (less) likely to

be presented with future investment opportunities. Due to lack of significant results

for the sub-hypothesis anticipating the negative effects of conservatism on the

implied costs of equity capital, the second hypothesis is not supported, indicative of

the absence of the mediating role of the implied cost of equity capital. Insignificance

of those effects is probably caused by technical issues that changing of the costs of

equity capital requires the longitudinal study and examining on conservatism's

surprise to a particular period probably renders noises. J. Francis et al. (2004) suggest

that testing for the equity cost effects of changes in earnings attributes, e.g.

conservatism, needs an over-time analysis that is difficult to perform for a given firm.

However, this study provides new evidence that Thai firms with a lower (higher)

implied cost of equity capital is more (less) likely to enjoy future investment

opportunities. Furthermore, Thai firms' future investment opportunities increase with

increase in dividend payments, share turnover, and firm size but decrease with gains in market share.

The additional tests reveal that, after controlling for information asymmetry, the positive relationships between accounting conservatism and future investment opportunities hold and are strongly significant. Furthermore, this study has found that increases in information asymmetry do not affect those relationships. The robustness test shows that accounting conservatism positively affects investment opportunities measured by the realized proxy (instead of the expected proxy). Therefore, the argument that investment opportunities measured by the market expectation capture risks and thereby lead to incorrect inferences of the results can be eliminated.

This study contributes to existing literature on accounting conservatism, corporate governance, and growth opportunity. The evidence from this study provides insights on positive economic outcomes of conservatism in the Thai setting and other economies with similar settings. In addition, the evidence extends the conclusions of prior studies which state that conservatism reduces agency problems and negative impacts on firm values in the setting of developed markets, e.g. the US (Y. Kim et al. (2013); B. Francis et al. (2013)). In support of a call by R. L. Watts

(2003a), the standard setters should exercise caution with regard to the elimination of conservative reporting and moving toward fair value reporting. The evidence from this study indicates that the elimination may change managerial behaviors and induce higher agency costs. The evidence also adds a new finding to existing corporate finance literature on firm-specific factors of investment opportunities. That is, conservative accounting numbers provide managers with a governance tool to determine the existence of negative NPV projects and thereby increase growth opportunities, supporting the role of accounting information in investment opportunities (Hossian et al. (2005)).

However, the cross-sectional predictions of the economic outcomes of conservatism on capital markets from this current study and those empirical works in the chapter of background literature are likely to have inherent jointly benefits/costs. For example, decrease in bankruptcy risks (Biddle et al. (2011)) and negative prices during the financial crisis (B. Francis et al. (2013)) as a result of conservatism practices can initiate new growth, thus the association between accounting conservatism and growth opportunities is likely observed. Examining the aggregated consequence of conservatism is hard as we cannot exactly identify an order of economic outcomes of conservatism which benefits are early affected when the firm adopts the practices of the timelier loss recognition.

This study is subject to certain caveats. Firstly, it is difficult to accurately measure the degree of asymmetric timeliness of earnings since the Basu reverse regression model is subject to bias inherent in the model's design (Dietrich et al. (2007)). Thus, caution should be exercised when interpreting the findings of this study since they might be influenced by noise to the extent that the estimations of the asymmetric timeliness degree deviate from the firm's actual value. The Basu method is the most straightforward measure of timelier economic loss recognition and commonly referred to in literature on the topic; therefore, the method is believed to be an appropriate measure for this study even though careful interpretation of the results is advised.

Although this study endeavors to address the endogeneity issue of conservatism using the instrumental variables, the truth is that these variables are not statistically significant and some of the variables may not be true exogenous variables. Since determinants of accounting conservatism (timely loss recognition) cover a wide range of accounting and financial variables, this study selects the determinants that are generally used in conservatism literature and with data available in the financial reports of Thai firms. Examples of the chosen determinants are the dual role of CEO and the number of audit committee members, which are manually collected. Identifying the best determinants in terms of both statistics and

theory requires sophisticated skills and knowledge and is beyond the scope of this current study, hence leaving room for future research.

In addition, this study realizes the measurement errors for the control variable of advertising and selling expenses, which cannot be directly measured since it is not mandatory for SET-listed firms to report this type of expenses as a separate item in the financial statements. Some academics advise the use of available data on advertising and selling expenses of one firm to estimate those of other firms in the same industry but with unavailable data. This necessitates manual collection of data from footnotes of those firms, a technique to be adopted in future related research.

Finally, due to technical problems as mentioned earlier this study fails to find consistent support for the negative effects of accounting conservatism on the costs of equity capital. Future research is advised to use a longitudinal period to examine changes in those costs and more concern other shocks in firm-specific level, e.g. voluntary disclosure, earnings announcement, affecting the expected rate of returns by investors.

Despite these limitations, the methodology in this study is believed to potentially clear doubt on the variable measurement errors and the findings offer an understanding of demand for conservatism, i.e. conditional conservatism, in an emerging market setting. The confounding proxy of the market-to-book ratios (which can be the measure of both unconditional conservatism and growth opportunities) is solved by using average total accruals in order to eliminate the effects of unconditional conservatism and obtaining the residual as the proxy of growth opportunities. Future research is advised to use other comprehensive income items to additionally address the confounding problems of those ratios [35]. The practice of conditional conservatism depending on bad news, e.g. the items of losses on remeasuring available-for-sale financial assets, likely leads to the understatement of the net assets, i.e. unconditional conservatism, and those items are already captured by the average total accruals.

The evidence on the relationships between timelier loss recognition and future investment opportunities presents possibility for future research. For instance, this study leaves unexplored linkages between timely loss recognition and future

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[35] According to TAS 1, the items required to include in other comprehensive income consist of (1) changes in revaluation surplus of assets, (2) remeasurements of a net defined benefit liability or assets, (3) exchange differences from translating functional currencies into presentation currency, (4) gains or losses on remeasuring available-for-sale financial assets, and (5) the effective portion of gains or losses on hedging instruments in a cash flow hedge.

investment opportunities that would explain how these relationships are affected by

corporate governance quality (e.g. either the substitute or complement effect),

whether the relationships hold in other economic environments (e.g. in developed

markets), whether investors are indifferent to the value of assets-in-place; if not, it is

conditional or unconditional conservatism that they use to price those assets, and

whether debtors drive demand for Thai firms' conservative reporting.

REFERENCES

Abbott, L. J. (2001). Financing, dividend, and compensation policies subsequent to a
     shift in the investment opportunity set. *Managerial Finance, 27*(3), 31-47.

Adam, T., & Goyal, V. K. (2008). The investment opportunity set and its proxy
     variables. *The Journal of Financial Research, 31*(1), 41-63.

Ahmed, A. S., Billings, B. K., Morton, R. M., & Standford-Harris, M. (2002). The role of
     accounting conservatism in mitigating bondholder-shareholder conflicts over
     dividend policy and in reducing debt costs. *The Accounting Review, 77*(4),
     867-890.

Ahmed, A. S., & Duellman, S. (2007). Accounting conservatism and board of director
     characteristics: An empirical analysis. *Journal of Accounting and Economics,
     43*(2-3), 411-437. doi: 10.1016/j.jacceco.2007.01.005

Ahmed, A. S., & Duellman, S. (2011). Evidence on the role of accounting conservatism
     in monitoring managers' investment decisions. *Accounting and Finance, 51*,
     609-633. doi: 10.1111/j.1467-629X.2010.00369.x

AlNajja, F. K., & Riahi-Belkaoui, A. (2001). Empirical validation of a general model of
     growth opportunities. *Managerial Finance, 27*(3), 72-90.

Amihud, Y., & Mendelson, H. (1986). Assets pricing and the bid-ask spread. *Journal of
     Financial Economics, 17*, 223-249.

Amihud, Y., & Mendelson, H. (1988). Liquidity and asset prices: financial management
     implications. *Financial Management, 17*, 5-15.

Anuchitworawong, C. (2010). The value of principles-based governance practices and
     the attenuation of information asymmetry. *Asia-Pacific Financial Markets, 17*,
     171-207.

Artiach, T. C., & Clarkson, P. M. (2010). *Conservatism, disclosure and the cost of
     equity capital (Working paper)*. The University of Queensland.

Artiach, T. C., & Clarkson, P. M. (2011). Disclosure, conservatism and the cost of equity
     capital: a review of the foundation literature. *Accounting and Finance, 51*, 2-
     49.

Ashbaugh, H., Collins, D. W., & LaFond, R. (2004). *Corporate governance and the cost of equity capital (Working paper)*. The University of Iowa.

Baber, W. R., Janakiraman, S. N., & Kang, S.-H. (1996). Investment opportunities and the structure of executive compensation. *Journal of Accounting and Economics, 21*, 297-318.

Ball, R., Robin, A., & Wu, S. J. (2003). Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics, 36*(1-3), 235-270.

Ball, R., & Shivakumar, L. (2005). Earnings quality in uk private firms: comparative loss recognition timeliness. *Journal of Accounting and Economics, 39*, 83-128.

Baron, R. M., & Kendy, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Basu, S. (1995). *Conservatism and the asymmetric timeliness of earnings.* (Ph.D.), The University of Rochester.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 24*(1), 3-37.

Basu, S. (2009). Conservatism research: historical development and future prospects. *China Journal of Accounting Research, 2*(1), 1-20.

Beatty, A., Weber, J., & Yu, J. J. (2008). Conservatism and Debt. *Journal of Accounting and Economics, 45*(2-3), 154-174. doi: 10.1016/j.jacceco.2008.04.005

Beaver, W., & Morse, D. (1978). What determines price-earnings ratios? *Financial Analysts Journal*(July-August), 65-76.

Beaver, W. H., & Ryan, S. G. (2005). Conditional and unconditional conservatism: concepts and modeling. *Review of Accounting Studies, 10*(2/3), 269-309.

Becker-Blease, J. R., & Paul, D. L. (2006). Stock liquidity and investment opportunities: evidence from index addition. *Financial Management*(Autumn), 35-51.

Biddle, G. C., Ma, M. L. Z., & Song, F. M. (2011). *Accounting conservatism and bankruptcy risk (Working paper)*. The University of Hong Kong.

Bliss, J. H. (1924). *Management through accounts*. New York, NY: The Ronald Press Co.

Botosan, C. A., & Plumlee, M. A. (2002). A re-examination of disclosure levels and expected cost of equity capital. *Journal of Accounting Research, 40*(1), 21-40.

Botosan, C. A., Plumlee, M. A., & Wen, H. (2011). The relation between expected returns, realized returns, and firm risk characteristics. *Contemporary Accounting Research, 28*(4 (Winter)), 1085-1122.

Bublitz, B., & Ettredge, M. (1989). The information in discretionary outlays: advertising, research and development. *The Accounting Review, 64*, 108-124.

Cahan, S. F., Godfrey, J. M., Hamilton, J., & Jeter, D. C. (2008). Auditor specialization, auditor dominance, and audit fees: the role of investment opportunities. *The Accounting Review, 83*(6), 1393-1423.

Chan, A. L. C., Lin, S. W. J., & Strong, N. (2009). Accounting conservatism and the cost of equity capital: UK evidence. *Managerial Finance, 35*(4), 325-345. doi: 10.1108/03074350910935821

Chandra, U., Wasley, C. E., & Waymire, G. B. (2004). *Income conservatism in the U.S. technology sector (working paper)*. University at Albany, The State University of New York.

Chang, C. L. (2009). Dividend payout ratio, investment opportunities, and the pecking order theory: evidence from Taiwan. *The Business Review, 13*(1), 304-312.

Chauvin, K. W., & Hirschey, M. (1993). Advertising, R&D expenditures, and the market value of the firm. *Financial Management, 22*(4), 128-140.

Chen, K. Y., Elder, R. J., & Hung, S. (2010). The investment opportunity set and earnings management: evidence from the role of controlling shareholders. *Corporate Governance: An International Review, 18*(3), 193-211. doi: 10.1111/j.1467-8683.2010.00793.x

Cheng, Q. (2005). What determines residual income? an empirical investigation. *The Accounting Review, 80*, 85-112.

Chi, W., Liu, C., & Wang, T. (2009). What affects accounting conservatism: a corporate governance perspective. *Journal of Contemporary Accounting & Economics, 5*(1), 47-59. doi: 10.1016/j.jcae.2009.06.001

Chi, W., & Wang, C. (2010). Accounting conservatism in a setting of information asymmetry between majority and minority shareholders. *The International Journal of Accounting, 45*, 465-489. doi: 10.1016/j.intacc.2010.09.002

Chitnomrath, T., Evans, R., & Christopher, T. (2011). Corporate governance and post-bankruptcy reorganization performance. *Asian Review of Accounting, 19*(1), 50-67.

Christies, A. (1989). *Organization of the firm: theory and evidence (Working paper)*. University of Rochester.

Chung, K. H., & Charoenwong, C. (1991). Investment options, assets in place, and the risk of stocks. *Financial Management, 20*(3), 21-33.

Chung, K. H., Li, M., & Yu, L. (2005). Assets in place, growth opportunities, and IPO returns. *Financial Management, 34*(3), 65-88.

Collins, D. W., & Kothari, S. P. (1989). An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics, 11*, 143-181.

Connelly, J. T., Limpaphayom, P., & Nagarajan, N. J. (2012). Form versus substance: the effect of ownership structure and corporate governance on firm value in Thailand. *Journal of Banking and Finance, 36*, 1722-1743. doi: 10.1016/j.jbankfin.2012.01.017

Cooper, M. J., Gulen, H., & Schill, M. J. (2008). Asset growth and the cross-section of stock returns. *The Journal of Finance, 63*(4), 1609-1651.

Coster, H. (2010). 100 most trustworthy companies in the U.S. *Forbes*(April 5).

Denis, D. J. (1994). Investment opportunities and the market reaction to equity offerings. *Journal of Financial and Quantitative Analysis, 29*(2), 159-177.

Dietrich, J. R., Muller, K. A., & Riedl, E. J. (2007). Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies, 12*(1), 95-124. doi: 10.1007/s11142-006-9023-y

Easley, D., & O'Hara, M. (2004). Information and the cost of capital. *The Journal of Finance, 59*(4), 1553-1583.

Easton, P. E. (2004). PE ratios, PEG ratios, and the estimating the implied expected rate of return on equity capital. *The Accounting Review, 79*(1), 73-95.

Ekkayokkaya, M., & Pengniti, T. (2012). Governance reform and IPO underpricing. *Journal of Corporate Finance, 18*, 238-253.

Elton, J. (1999). Expected return, realized return, and asset pricing tests. *Journal of Finance, 54*(4), 1199-1220.

Ettredge, M., Huang, Y., & Zhang, W. (2012). Earnings restatements and differential timeliness of accounting conservatism. *Journal of Accounting and Economics, 53*(3), 489-503. doi: 10.1016/j.jacceco.2012.01.002

FASB. (2010). Conceptual Framework *Statement of Financial Accounting Concepts No.8* (pp. 42).

Firer, C. (1993). The P/E ratio and the cost of equity capital. *Investment Analysts Journal, 38*(Summer), 43-47.

Francis, B., Hasan, I., & Wu, Q. (2013). The benefits of conservative accounting to shareholders: evidence from the financial crisis. *Accounting Horizons, 27*(2), 319-346. doi: 10.2308/acch-50431

Francis, J., LaFond, R., Olssan, P. M., & Schipper, K. (2004). Costs of equity and earnings attributes. *The Accounting Review, 79*(4), 967-1010.

Francis, J. R., Khurana, I. K., & Pereira, R. (2005). Disclosure incentives and effects on cost of capital around the world. *The Accounting Review, 80*(4), 1125-1162.

Francis, J. R., & Martin, X. (2010). Acquisition profitability and timely loss recognition. *Journal of Accounting and Economics, 49*(1-2), 161-178. doi: 10.1016/j.jacceco.2009.09.003

Gao, P. (2011). *A contracting approach to conservatism and earnings management (Working paper)*. The University of Chicago Booth School of Business.

Garner, J., Nam, J., & Ottoo, R. E. (2002). Determinants of corporate growth opportunities of emerging firms. *Journal of Economics and Business, 54*, 73-93.

Gaver, J. J., & Gaver, K. M. (1993). Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Accounting and Economics, 16*, 125-160.

Gebhardt, W. R., Lee, C. M. C., & Swaminathan, B. (2001). Toward an implied cost of capital. *Journal of Accounting Research, 39*(1), 135-176.

Giavazzi, F., & Giovannini, A. (1989). *Limiting exchange rate flexibility: the European monetary system*. Cambridge: MIT Press.

Gigler, F., Kanodia, C., Sapra, H., & Venugopalan, R. (2009). Accounting conservatism and the efficiency of debt contracts. *Journal of Accounting Research, 47*(3), 767-797.

Givoly, D., & Hayn, C. K. (2000). The changing time series properties of earnings, cash flows, and accruals: has financial reporting become more conservative? *Journal of Accounting and Economics, 29*, 287-320.

Givoly, D., Hayn, C. K., & Natarajan, A. (2007). Measuring reporting conservatism. *The Accounting Review, 82*(1), 65-106.

Gordon, J., & Gordon, M. (1997). The finite horizon expected return model. *Financial Analysts Journal, 53*(3), 52-61.

Gorkittisunthorn, M., Jumreornvong, S., & Limpaphayom, P. (2006). Insider ownership, bid-ask spread, and stock splits: evidence from the Stock Exchange of Thailand. *International Review of Financial Analysis, 15*, 450-461.

Grace Lee, H. S., Li, X., & Sami, H. (2014). Conditional conservatism and audit fee. *Accounting Horizons, Forthcoming*.

Guay, W., & Verrecchia, R. E. (2007). *Conservative disclosure (Working paper)*. University of Pennsylvania.

Gul, F. A. (1999). Growth opportunities, capital structure, and dividend policy in Japan. *Journal of Corporate Finance, 5*, 141-168.

Herrmann, D. R., Pornupatham, S., & Vichitsarawong, T. (2008). The Impact of the Asian financial crisis on auditor's conservatism. *Journal of International Accounting Research, 7*(2), 43-62.

Ho, S. S. M., Lam, K. C. K., & Sami, H. (2004). The investment opportunity set, director ownership, and corporate policies: evidence from an emerging market. *Journal of Corporate Finance, 10*(3), 383-408. doi: 10.1016/s0929-1199(02)00024-x

Hossian, M., Ahmed, K., & Godfrey, J. M. (2005). Investment opportunity set and voluntary disclosure of prospective information: a simultaneous equations approach. *Journal of Business Finance and Accounting, 32*(5), 871-907.

Hui, K. W., Klasa, S., & Yeung, E. P. (2012). Corporate suppliers and customers and accounting conservatism. *Journal of Accounting and Economics, 53*(1-2), 115-135.

Hui, K. W., Matsunaga, S., & Morse, D. (2009). The impact of conservatism on management earnings forecasts. *Journal of Accounting and Economics, 47*(3), 192-207. doi: 10.1016/j.jacceco.2009.01.001

Hutchinson, M., & Gul, F. A. (2004). Investment opportunity set, corporate governance practices and firm performance. *Journal of Corporate Finance, 10*(4), 595-614. doi: 10.1016/s0929-1199(03)00022-1

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

Johnson, S. A. (1999). *Determining cost of capital: the key to firm value*. Wiltshire: Prentice Hall.

Kallapur, S., & Trombley, M. A. (1999). The association between investment opportunity set proxies and realized growth. *Journal of Business Finance and Accounting, 26*(3-4), 505-519.

Kallapur, S., & Trombley, M. A. (2001). The investment opportunity set: determinants, consequences and measurement. *Managerial Finance, 27*(3), 3-14.

Kester, C. (1984). Today's options for tomorrow's growth. *Harvard Business Review*(March-April), 153-160.

Kester, C. (1986). An options approach to corporate finance *Handbook of Corporate Finance* (2nd ed.). New York: Wiley.

Kim, B. H., & Pevzner, M. (2010). Conditional accounting conservatism and future negative surprises: An empirical investigation. *Journal of Accounting and Public Policy, 29*(4), 311-329. doi: 10.1016/j.jaccpubpol.2010.03.003

Kim, Y., Li, S., Pan, C., & Zuo, L. (2013). The role of accounting conservatism in the equity market: evidence from seasoned equity offerings. *The Accounting Review, 88*(4), 1327-1356. doi: 10.2308/accr-50420

Kothari, S. P., Li, x., & Short, J. E. (2009b). The effect of disclosures by management, analysts, and business press on cost of capital, return volatility, and analyst

forecasts: a study using content analysis. *The Accounting Review, 84*(5), 1639-1670.

Kothari, S. P., Shu, S., & Wysocki, P. D. (2009a). Do managers withold bad news? *Journal of Accounting Research, 47*(1), 241-276. doi: 10.1111/j.1475-679X.2008.00318.x

LaFond, R., & Watts, R. L. (2008). The information role of conservatism. *The Accounting Review, 83*(2), 447-478.

Lambert, R., Leuz, C., & Verrecchia, R. E. (2007). Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research, 45*(2), 385-420.

Lara, J. M., Osma, B., & Penalva, F. (2009). Accounting conservatism and corporate governance. *Review of Accounting Studies, 14*(1), 161-201.

Lara, J. M., Osma, B., & Penalva, F. (2011). Conditional conservatism and cost of capital. *Review of Accounting Studies, 16*(2), 247-271. doi: 10.1007/s11142-010-9133-4

Li, X. (2010). *Accounting conservatism and the cost of capital: an international analysis (Working paper)*. Temple University.

Litzenberger, R., & Rao, C. (1971). Estimates of the marginal rate of time preference and average risk aversion of investors in electric utility shares: 1960-1966. *Bell Journal of Economics and Management Science*(Spring), 265-277.

Montgomery, D. C., Peck, E. A., & Vining, G. G. (2001). *Introduction to linear regression analysis* (3rd ed.). New York: John Wiley & Sons.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*, 147-175.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information the investors do not have. *Journal of Financial Economics, 13*(2), 187-221.

Ohlson, J., & Juettner-Nauroth, B. (2005). Expected EPS and EPS growth as determinants of value. *Review of Accounting Studies, 10*, 349-365.

Penman, S. (2003). The quality of financial statements: perspectives from the recennt stock market bubble. *Accounting Horizons, 17*, 77-96.

Pindyck, R. (1988). Irreversible investment, capacity choice, and the value of the firm. *American Economic Review*(December), 969-985.

Pope, P. F., & Walker, M. (2003). *Ex-ante and ex-post accounting conservatism, assets recognition, and asymmetric earnings timeliness (working paper)*. Lancaster Univeristy.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185-227.

Priebjrivat, A. (2011). Disclosure and the cost of equity capital: evidence from Stock Exchange of Thailand. *Nida Business Journal, 8*(May), 29-48.

Purfield, C., Oura, H., Kramer, C., & Jobst, A. (2006). *Asian equity market: growth, opportunities, and challenges (IMF working paper 06/266)*. Asia and Pacific, and Monetary and Capital Markets Departments. International Monetary Fund.

Qiang, X. (2007). The effects of contracting, litigation, regulation, and tax costs on conditional and unconditional conservatism: cross-sectional evidence at the firm level. *The Accounting Review, 82*(3), 759-796.

Rahman, A., Yammeesri, J., & Perera, H. (2010). Financial reporting quality in international setting: a comparative study of the USA, Japan, Thailand, France, and Germany. *The International Journal of Accounting, 45*, 1-34.

Ramalingegowda, S., & Yu, Y. (2012). Institutional ownership and conservatism. *Journal of Accounting and Economics, 53*(1-2), 98-114. doi: 10.1016/j.jacceco.2011.06.004

Ruch, G. W., & Taylor, G. (2011). *Accounting conservatism and its effects on financial reporting quality: a review of the literature (Working paper)*. University of Alabama.

Ryan, S. G. (2006). Identifying conditional conservatism. *European Accounting Review, 15*(4), 511-525. doi: 10.1080/09638180601102099

Shu, S. (2014). Do managers withold bad news? *Notable contributions to accounting literature award*. Atlanta, Georgia: The 2014 American Accounting Association annual meeting.

Skinner, D. J. (1993). The investment opportunity set and accounting procedure choice. *Journal of Accounting and Economics, 16*, 407-445.

Smith, C. W., & Watts, R. L. (1992). The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics*(32), 263-292.

Sohn, B. C. (2012). Analyst forecast, accounting conservatism and the related valuation implications. *Accounting and Finance, 52* (Suppl.), 311-341. doi: 10.1111/j.1467-629X.2011.00428.x

Standford, J. D. (2002). Emerging capital markets *International Economics, Finance and Trade* (1 ed.). UK: EOLSS Publications.

Sterling, R. R. (1967, 110). Conservatism: the fundamental principle of valuation in traditional accounting. *Abacus, 3*(2), 109-132.

Vichitsarawong, T., Eng, L. L., & Meek, G. K. (2010). The impact of the asian financial crisis on conservatism and timeliness of earnings: evidence from Hong Kong, Malaysia, Singapore, and Thailand. *Journal of International Financial Management and Accounting, 21*(1), 32-61.

Vuolteenaho, T. (2002). What drives firm-level stock returns? *Journal of Finance, 57*(1), 233-264.

Wang, R. Z., HOgartaigh, C. O., & Zijl, T. V. (2009). Measures of accounting conservatism: a construct validity perspective. *Journal of Accounting Literature, 28*, 165-203.

Watts, R. L. (2003a). Conservatism in accounting part I: explanations and implications. *Accounting Horizons, 17*(3), 207-221.

Watts, R. L. (2003b). Conservatism in accounting part II: evidence and research opportunities. *Accounting Horizons, 17*(4), 287-300.

Watts, R. R., & Zuo, L. (2011). *Accounting conservatism and firm value: evidence from the global financial crisis (MIT Sloan School Working Paper No. 4941-11)*. Massachusetts Institute Technology.

Weiqi, Z. (2014). *The impact of cost of equity on seasoned equity offerings (Working paper)*. Unversity of Munster.

Wittenberg-Moerman, R. (2008). The role of information asymmetry and financial reporting quality in debt contracting: evidence from the secondary loan market. *Journal of Accounting and Economics, 46*, 240-260.

Wiwattanakantang, Y. (2001). Controlling shareholders and corporate value: evidence from Thailand. *Pacific-Basin Finance Journal, 9*, 323-362.

Wooldridge, J. M. (2002). *Introductory econometrics: a modern approach* (2nd ed.): South-Western.

Yoon, P. S., & Starks, L. T. (1995). Signaling, investment opportunities, and dividend announcements. *The Review of Financial Studies, 8*(4), 995-1018.

Zhang, J. (2005). *The contracting benefits of accounting conservatism to lenders and borrowers.* (Doctor of Philosophy in Management), Massachusetts Institute of Technology.

Zhang, J. (2008). The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics, 45*(1), 27-54. doi: 10.1016/j.jacceco.2007.06.002

APPENDICES

Appendix A: Derivation of the Earnings-to-Price Ratio

Several prior studies, including Litzenberger and Rao (1971) and W. Beaver and Morse (1978), conventionally employed the earnings-to-price (P/E) ratio to measure growth opportunities. The rationale behind its use is obvious from the expression for the market equilibrium price of common stock:

$$P = \frac{EPS_1}{r} + PVGO$$

where P is the market equilibrium stock price, EPS_1 is the earnings per share at time 1 generating from assets-in-place, r is the capitalization rate, and PVGO is the present value of growth opportunities. The first term of the expression (EPS_1/r) represents the capitalized value of the earnings which a firm would derive from the assets already in place. The second term (PVGO) is the net present value of the firm's future investment options. The rearrangement and the differentiation of the above equation yield the outcomes as follows:

Rearranging:

$$\frac{PVGO}{P} = 1 - \left(\frac{EP}{r}\right) \qquad \text{where EP} = EPS_1/P$$

Differentiating by EP:

$$\frac{d\frac{PVGO}{P}}{dEP} = \frac{-1}{r} < 0$$

Thus, the larger the EP, the smaller the ratio of the proportion of the equity value accounted for by growth opportunities, *ceteris paribus*. However, the above model is based on the limiting assumptions that current earnings are an adequate proxy of cash flows received from assets-in-place in perpetuity. In addition, the benefits of the earnings-to-price ratio are limited to firms with non-negative earnings.

Appendix B: Tables of Results

Table 1

Sample Description

Panel A: Sample Selection

	N	%
Number of firm-years in the Stock Exchange of Thailand from 2005-2011	3,301	
Less: Firms under Non-Compliance (NC) and Non Performing Group (NPG) or rehabilitation firms	(219)	
Firms in financial industry (banking, finance and securities, and insurance)	(437)	
Non-December fiscal year-end firms	(156)	
	2,489	100.0%
Unavailable/Incomplete data [a]	(995)	(40.0%)
Unusual data [b]	(97)	(3.9%)
Final sample (number of year-firms) [c]	1,397	56.1%
Final sample (number of firms)	292	

Panel B: Final Sample breakdown by Industry and Year

	2011	2010	2009	2008	2007	2006	2005	Total	%
Ago & Food Industry	31	20	31	29	27	27	25	190	13.6%
Consumer Products	29	27	28	28	28	25	24	189	13.5%
Industrials	56	44	38	34	35	30	27	264	18.9%
Property&Construction	55	50	47	47	35	35	34	303	21.7%
Resource	13	12	11	6	8	9	10	69	5.0%
Services	45	43	46	40	31	28	34	267	19.1%
Technology	25	21	18	13	12	13	13	115	8.2%
Total	254	217	219	197	176	167	167	1,397	100%
%	18.2%	15.2%	15.7%	14.2%	12.6%	11.9%	11.9%	100%	

Table 1 (Continued)

[a] A significant portion of the unavailable/incomplete data is attributable to the requirement for stock returns, closing prices and annual earnings (to calculate the degrees of conservatism) of eight years prior. Since this research covers the period of 2005-2011, data on stock returns, closing prices and annual earnings since 1998 are used.

[b] In the regression, unusual data is detected by studentized residuals, hat values, and Cook's distance measures. The outlying observations (extreme dependent variables) whose studentized deleted residuals are higher or lower than +/- 4.279, the high leveraged observations (extreme independent variables) whose hat values are higher than 0.011, and the influential observations (extreme both dependent and independent variables) whose Cook's distance measures are greater than 0.003 are removed from the regressions.

[c] The number of final samples in each regression model is different as it depends on the requirement for specific data and the removal of unusual data. The 1,397 final samples are based on the RANK model.

Table 2

Descriptive Statistics

Variables [a]	N	Mean	Median	Std. Dev.	Q1	Q3
Dependent Variables [b]						
MBE	1,386	1.035	0.857	5.982	0.560	1.414
arMBE	1,386	0.441	0.373	0.424	0.140	0.590
GRMVA	1,407	0.417	0.351	0.239	0.271	0.485
EP	1,102	0.112	0.099	0.072	0.065	0.143
VAR	1,389	0.170	0.076	0.328	0.036	0.160
RANK	1,397	4.958	4.869	1.544	3.838	5.960
Interested Variables						
CONS	1,397	-0.031	0.214	121.011	-1.694	2.751
$\widehat{\text{CONS}}$	1,397	-0.031	-0.289	6.033	-4.107	3.608
Mediating Variable						
rPEG	393	0.150	0.119	0.127	0.088	0.169
Control and						
Instrumental Variables						
DIVPAY	1,397	0.389	0.384	0.440	0.000	0.600
STOCKTURN	1,397	0.923	0.234	1.839	0.038	1.033
PROFIT	1,397	0.042	0.042	0.078	0.000	0.086
SIZE	1,397	21.802	21.797	1.490	20.815	22.758
MKCON	1,397	0.015	0.006	0.022	0.002	0.016
EXPENS	1,397	0.167	0.132	0.135	0.072	0.216
LEV	1,397	0.247	0.225	0.205	0.052	0.404
BTM	1,397	0.852	0.665	0.737	0.404	1.096
RVOLAT	1,397	0.028	0.025	0.024	0.018	0.033
EVOLAT	1,397	0.317	0.403	9.436	0.233	0.778
CEOPOW	1,397	0.245	0.000	0.431	0.000	0.000
BIG4	1,397	0.579	1.000	0.494	0.000	1.000
AUDCOM	1,397	0.293	0.286	0.075	0.250	0.333
AGE	1,397	17.061	16.500	6.067	13.500	19.833

[a] Variables are averaged over the seven-year sample period.

[b] Dependent variables used in the hypothesis tests are arMBE, GRMVA, EP, VAR, and Rank, excluding MBE.

Table 2 (Continued)

Definitions of variables are given below:

MBE = the market-to-book of equity ratio.

arMBE = the absolute values of residuals of market-to-book of equity ratio ($|\varepsilon_{i,t}|$) obtained from the following regression.

$$MBE_{i,t} = \alpha_0 + \alpha_1 TAC_{i,t} + \varepsilon_{i,t}$$

where $MBE_{i,t}$ = market-to-book value of equity for firm i in year t, and $TAC_{i,t}$ = average total accruals scaled by average total assets from year t-2 to year t, multiplied by negative one.

GRMVA = the three-year geometric mean annual growth rate of market value of assets.

EP = the earnings-to-price ratio.

VAR = the annualized variance of return on market value of assets based on a time series of at least four annual observations ending 1998.

RANK = the average of corresponding decile ranks of arMBE, GRMVA, EP, and VAR.

CONS = the degree of accounting conservatism measured by the relative sensitivity of earnings to losses (bad news) compared to the sensitivity of earnings to gains (good news) or $(\beta_0 + \beta_1)/\beta_0$, which is computed from the following regression with eight-year window backward for each firm for any single year.

$$X_{i,t} = \alpha_0 + \alpha_1 DR_{i,t} + \beta_0 R_{i,t} + \beta_1 R_{i,t}^* DR_{i,t} + \varepsilon_{i,t}$$

where $X_{i,t}$ = the earnings per share of firm i in fiscal year t scaled by stock prices at the beginning of fiscal year t, $R_{i,t}$ = the stock returns on firm i over the 12 months beginning from 10 months before fiscal year-end t to two months after fiscal year-end t, and $DR_{i,t}$ = a dummy variable equal to one if $R_{i,t}$ = negative (bad news), and zero otherwise.

$\widehat{CONS}$ = the estimated value of the degree of accounting conservatism from the following first-stage regression with the instrumental variables:

$$CONS_{i,t} = \beta_0 + \beta_1 CEOPOW_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 AUDCOM_{i,t} + \beta_4 AGE_{i,t}$$
$$+ \beta_5 LEV_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 BTM_{i,t} + \beta_8 RVOLAT_{i,t} + \nu_{i,t}$$

where **CEOPOW** = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise, **BIG4** = a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise, **AUDCOM** = the ratio of the number of independent audit committee to the number of total board, **AGE** = the number of years after initial public offering, **LEV** = the ratio of long-term debts to total assets at the end of a fiscal year, **SIZE** = the market value of equity scaled by total assets at the end of a fiscal year, **BTM** = the ratio of book to market value at the end of a fiscal year, and **RVOLAT** = the standard deviation of daily returns over a fiscal year.

Table 2 (Continued)

rPEG = the implied costs of equity capital by the Easton (2004) Model as follows:

$$rPEG = \sqrt{(feps2 - feps1)/p0}$$

where **feps2** = the two-year-ahead consensus forecast of earnings per share by analysts, **feps1** = a one-year-ahead consensus forecast of earnings per share by analysts, and **p0** = closing price per share at year 0.

DIVPAY = the ratio of annual dividend payment to annual earnings before extraordinary items.

STOCKTURN = the number of annual common shares traded scaled by the number of common shares outstanding in a fiscal year.

PROFIT = the ratio of annual operating incomes to total assets.

SIZE = a natural logarithm of annual sales.

MKCON = the ratio of a firm's annual revenues to total industry revenue.

EXPENS = annual selling and administration expenditures divided by annual sales.

LEV = the ratio of long-term debt to total assets at the end of a fiscal year.

BTM = the ratio of book to market value of equity at the end of a fiscal year.

RVOLAT = the standard deviation of daily returns in a fiscal year.

EVOLAT = the standard deviation of annual earnings divided by the mean over the last five years.

CEOPOW = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise.

BIG4 = a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise.

AUDCOM = the ratio of the number of independent audit committee to the number of total board.

AGE = the number of years after initial public offering

Table 3

Pearson and Spearman Correlation Matrix for Dependent, Interested, Mediating, and Control Variables

Variables [a]	aMBE	GRMVA	EP	VAR	RANK	CONS	C̃ONS	DIVPAY	STOCK TURN	PROFIT	SIZE	MKCON	EXPENS	rPEG	LEV	BTM	RVOLAT	EVOLAT
N	1,386	1,407	1,102	1,389	1,397	1,397	1,397	1,397	1,397	1,397	1,397	1,397	1,397	393	1,397	1,397	1,397	1,397
arMBE		-0.012	-0.121*	-0.034	0.321*	-0.009	0.072*	-0.048	-0.029	-0.096*	-0.038	-0.022	0.108*	-0.153*	-0.027	-0.534*	0.163*	0.028
GRMVA	0.111*		-0.040	0.135*	0.496*	0.038	0.053*	0.210*	0.095*	0.332*	0.222*	0.118*	-0.141*	-0.117*	0.014	-0.431*	0.233*	0.038
EP	-0.186*	-0.086*		-0.137*	-0.610*	-0.011	-0.134*	-0.256*	0.055	0.399*	0.047	0.072*	-0.168*	-0.030	-0.019	0.467*	-0.150*	0.064
VAR	0.005	0.086*	-0.022		0.588*	-0.008	0.005	0.052	0.349*	0.123*	0.204*	0.088*	-0.103*	0.069	-0.082	-0.183*	0.152*	-0.021
RANK	0.313*	0.282*	-0.476*	0.221*		0.003	0.092*	0.226*	0.124*	0.062*	0.103*	0.030	0.007	-0.192*	-0.133*	-0.677*	0.354*	-0.008
CONS	0.009	0.006	-0.026	0.050*	0.043		0.003	0.009	0.028	-0.010	0.074*	0.061*	-0.058	0.014	0.056	-0.019	-0.082	-0.032
C̃ONS	0.052*	0.070*	-0.052	0.005	0.099*	0.050		0.117*	-0.190*	0.008	0.193*	0.236*	-0.036	0.144*	0.054	-0.133*	0.134*	-0.087
DIVPAY	-0.013	0.019	-0.247*	-0.019	0.216*	0.039	0.124*		-0.205*	0.416*	0.177*	0.138*	-0.099*	-0.396*	-0.202*	-0.369*	0.245*	-0.171*
STOCKTURN	-0.010	-0.003	0.004	-0.018	0.052*	0.014	-0.065*	-0.154*		0.004	0.211*	0.048	-0.043	0.269*	0.240*	0.076	-0.219*	0.180*
PROFIT	0.029	0.087*	0.200*	-0.063*	0.136*	0.015	-0.003	0.275*	-0.097*		0.309*	0.208*	-0.293*	-0.435*	-0.138*	-0.462*	0.332*	-0.195*
SIZE	0.083*	0.039	0.059*	-0.088*	0.106*	0.022	0.165*	0.133*	-0.012	0.309*		0.860*	-0.436*	-0.162*	0.079	-0.210*	0.277*	-0.072
MKCON	0.129*	0.002	0.017	-0.066*	0.018	0.010	0.153*	0.066*	-0.053*	0.083*	0.649*		-0.229*	-0.036	0.001	-0.148*	0.213*	-0.042
EXPENS	0.092*	-0.039	-0.099*	0.067*	-0.023	0.001	-0.036	-0.110*	0.008	-0.381*	-0.471*	-0.229*		0.039	0.071	-0.074	-0.100*	-0.057
rPEG	-0.036	-0.091	-0.071	-0.006	-0.202*	-0.025	-0.092*	-0.158*	0.421*	-0.404*	-0.120*	-0.036	0.255*		0.151*	0.390*	-0.237*	0.153*
LEV	0.128*	0.045	-0.022	-0.058	-0.150*	0.008	0.047	-0.022	-0.037	-0.131*	0.112*	0.135*	0.108*	0.087		0.070	0.035	-0.005
BTM	-0.307*	-0.266*	0.398*	-0.005	-0.487*	-0.057	-0.071	-0.121*	-0.013	-0.355*	-0.124*	-0.051	0.117*	0.463*	-0.016		-0.226*	0.089
RVOLAT	0.161*	0.180*	-0.125*	-0.024	0.322*	0.005	0.252*	0.007	-0.031	0.212*	0.330*	0.255*	-0.059	-0.126*	0.035	-0.375*		0.004
EVOLAT	0.009	0.039	0.107*	-0.026	-0.024	0.002	-0.038	-0.680*	-0.011	0.051	-0.024	0.006	0.031	0.070	-0.005	0.089	-0.170*	

Table 3 (Continued)

[a] Pearson correlation is above the diagonal and Spearman correlation is below the diagonal. The stars (*) indicates statistical significant at the 0.05 level or better, two tailed test.

Definitions of variables are given below:

arMBE = the absolute values of residuals of market-to-book of equity ratio, **GRMVA** = the three-year geometric mean annual growth rate of market value of assets, **EP** = the earnings-to-price ratio, **VAR** = the annualized variance of return on market value of assets based on a time series of at least four annual observations ending 1996, **RANK** = the average of corresponding decile ranks of arMBE, GRMVA, EP, and VAR, **CONS** = the degree of accounting conservatism, $\overline{\text{CONS}}$ = the estimated value of the degree of accounting conservatism, **DIVPAY** = the ratio of annual dividend payment to annual earnings before extraordinary items, **STOCKTURN** = the number of annual common shares traded scaled by the number of common shares outstanding in a fiscal year, **PROFIT** = the ratio of annual operating incomes to total assets, **SIZE** = a natural logarithm of annual sales, **MKCON** = the ratio of a firm's annual revenues to total industry revenue. **EXPENS** = annual selling and administration expenditures divided by annual sales, **rPEG** = the implied costs of equity capital, **LEV** = the ratio of long-term debt to total assets at the end of a fiscal year, **BTM** = the ratio of book to market value of equity at the end of a fiscal year, **RVOLAT** = the standard deviation of daily returns in a fiscal year, **EVOLAT** = the standard deviation of annual earnings divided by the mean over the last five years.

Table 4

Tests for Endogeneity

Models for Endogeneity Tests in Accounting Conservatism:

$$IOS_{i,t} = \alpha_0 + \alpha_1 CONS_{i,t} + \sum_{m=2}^{7} \alpha_m\ Control_{m,i,t} + \delta_8 \hat{v}_{i,t} + \omega_{i,t}$$

Where $\hat{v}_{i,t}$ obtained from:

$$CONS_{i,t} = \beta_0 + \beta_1 CEOPOW_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 AUDCOM_{i,t} + \beta_4 AGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 BTM_{i,t} + \beta_8 RVOLAT_{i,t} + v_{i,t}$$

	IOS Measures				
	(1)	(2)	(3)	(4)	(5)
	arMBE	GRMVA	EP	VAR	RANK
	(N=1386)	(N=1407)	(N=1102)	(N=1389)	(N=1397)
The Testing Variable: $\hat{v}$					
Parameter Estimate (δ_8)	-0.0097	-0.0008	0.0018	0.0017	-0.0187
Standard Error	0.0018	0.0010	0.0004	0.0013	0.0068
p-value	<.0001***	0.4335	<.0001***	0.1931	0.0060***
Endogeneity in CONS	Yes	No	Yes	No	Yes
The Estimators for H1-H2	IV[a]	OLS	IV	OLS	IV
Adj. R^2	0.0378	0.0889	0.1916	0.0500	0.0716
F-value	<.0001***	<.0001***	<.0001***	<.0001***	<.0001***

[a] IV or instrumental variables or two-stage least squares, and OLS or ordinary least squares.

Definitions of variables are given below:

IOS = investment opportunity set measures, including **arMBE** (the absolute values of residuals of market-to-book of equity ratio), **GRMVA** (the three-year geometric mean annual growth rate of market value of assets), **EP** (the earnings-to-price ratio), **VAR** (the annualized variance of return on market value of assets based on a time series of at least four annual observations ending 1998), and **RANK** (the average of corresponding decile ranks of the four aforesaid measures).

Table 4 (Continued)

CONS = the degree of accounting conservatism.

CONTROL = control variables, including **DIVPAY** (the ratio of dividend payment to annual earnings before extraordinary items), **STOCKTURN** (the number of annual common shares traded divided by the number of annual common shares outstanding in a fiscal year), **PROFIT** (the ratio of annual operating incomes to total assets), **SIZE** (a natural logarithm of annual sales), **MKCON** (the ratio of a firm's revenue to total industry revenue), and **EXPENS** (annual selling and administration expenditures divided by annual sales).

$\hat{v}$ = an estimated value of v.

ω = the error terms.

CEOPOW = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise.

BIG4 = a dummy variable coded one if the firm employs auditors from brand name audit companies, and zero otherwise.

AUDCOM = the ratio of the number of independent audit committee to the number of total board.

AGE = the number of years after initial public offering. **LEV** = long-term debts divided by total assets at the end of a fiscal year.

SIZE = the market value of equity scaled by total assets at the end of a fiscal year.

BTM = the ratio of book to market value at the end of a fiscal year.

RVOLAT = the standard deviation of daily returns over a fiscal year. v = the error terms.

*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 5

Tests of H1 (Individual Measures): the Association between Accounting Conservatism and the Individual Measures of

Investment Opportunities

OLS: $IOS_{i,t} = \alpha_0 + \alpha_1 CONS_{i,t} + \alpha_2 DIVPAY_{i,t} + \alpha_3 STOCKTURN_{i,t} + \alpha_4 PROFIT_{i,t} + \alpha_5 SIZE_{i,t} + \alpha_6 MKCON_{i,t} + \alpha_7 EXPENS_{i,t} + \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$

IV: $IOS_{i,t} = \alpha_0 + \alpha_1 \overline{CONS}_{i,t} + \alpha_2 DIVPAY_{i,t} + \alpha_3 STOCKTURN_{i,t} + \alpha_4 PROFIT_{i,t} + \alpha_5 SIZE_{i,t} + \alpha_6 MKCON_{i,t} + \alpha_7 EXPENS_{i,t} + \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$

	1 arMBE (N=1386) IV			2 GRMVA (N=1407) OLS			3 EP (N=1102) IV			4 VAR (N=1389) OLS		
	Pre.Sign	Est.Coe.	p-value	Pre.Sign	Est.Coe.	p-value	Pre.Sign	Est.Coe.	p-value	Pre.Sign	Est.Coe.	p-value
Intercept		-0.2004	0.4585		0.0725	0.6110		0.0805	0.0895*		-0.1685	0.4252
CONS				(+)	0.0000	0.5760				(+)	0.0003	<.0001***
$\overline{CONS}$	(+)	0.0091	<.0001***				(-)	-0.0018	<.0001***			
DIVPAY	(+/-)	-0.0027	0.9156	(+/-)	0.0266	0.0535*	(+/-)	-0.0560	<.0001***	(+/-)	-0.0085	0.6772
STOCKTURN	(+)	-0.0020	0.7298	(+)	0.0086	0.0053***	(-)	-0.0012	0.5558	(+)	0.0222	<.0001***
PROFIT	(+)	0.3618	0.0183**	(+)	0.5694	<.0001***	(-)	0.3372	<.0001***	(+)	-0.0325	0.7881
SIZE	(+/-)	0.0252	0.0416**	(+/-)	0.0174	0.0076***	(+/-)	0.0029	0.1769	(+/-)	0.0131	0.1749
MKCON	(+/-)	-0.7511	0.2950	(+/-)	0.2311	0.5184	(+/-)	-0.0149	0.8835	(+/-)	-0.4956	0.3490
EXPENS	(+)	0.4709	<.0001***	(+)	0.0170	0.7613	(-)	-0.0604	0.0059***	(+)	-0.2543	0.0024***
Fixed Effects:												
Year		Yes			Yes			Yes			Yes	
Industry		Yes			Yes			Yes			Yes	
Adj. R^2		0.1501			0.2120			0.3211			0.0863	
F-value		<.0001***			<.0001***			<.0001***			<.0001***	

Table 5 (Continued)

Definitions of variables are given below:

Dependent Variables: IOS or future investment opportunity set: **arMBE** is the absolute values of residuals of market-to-book of equity ratio, **GRMVA** is the three-year geometric mean annual growth rate of market value of assets, **EP** is the earnings-to-price ratio, **VAR** is the annualized variance of return on market value of assets based on a time series of at least four annual observations ending 1998.

Interested variables: CONS is the degree of accounting conservatism or the relative sensitivity of earnings to losses compared to the sensitivity of earnings to gains in eight years prior, $\widehat{CONS}$ is the estimated value of the conservatism degree from the first stage regression as follows;

$$\widehat{CONS} = -20.79 - 2.50CEOPOW + 8.37BIG4 + 9.30AUDCOM + 0.66AGE - 5.73LEV + 2.84SIZE + 0.53BTM + 45.59RVOLAT$$

Where **CEOPOW** is a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise, **BIG4** is a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise, **AUDCOM** is the ratio of the number of independent audit committee to the number of total board, **AGE** is the number of years after initial public offering, **LEV** is long-term debts divided by total assets at the end of a fiscal year, **SIZE** is the market value of equity scaled by total assets at the end of a fiscal year, **BTM** is the ratio of book to market value at the end of a fiscal year, **RVOLAT** is the standard deviation of daily returns over a fiscal year.

Control variables: DIVPAY is the ratio of annual dividend payment to annual earnings before extraordinary items, **STOCKTURN** is the number of annual common shares traded scaled by the number of common shares outstanding in the fiscal year, **PROFIT** is the ratio of annual operating incomes to total assets, **SIZE** is a natural logarithm of annual sales, **MKCON** is the ratio of a firm's annual revenues to total industry revenue, **EXPENS** is annual selling and administration expenditures divided by annual sales.

Year **fixed effects: Y06** is a dummy variable coded one if firm i is in year 2006, and zero otherwise, **Y07** is a dummy variable coded one if firm i is in year 2007, and zero otherwise, **Y08** is a dummy variable coded one if firm i is in year 2008, and zero otherwise, **Y09** is a dummy variable coded one if firm i is in year 2009, and zero otherwise, **Y10** is a dummy variable coded one if firm i is in year 2010, and zero otherwise, and **Y11** is a dummy variable coded one if firm i is in year 2011, and zero otherwise. **Industry fixed effects: I2** is a dummy variable coded one if firm i is in the industry of consumer products and zero otherwise, **I4** is a dummy variable coded one if firm i is in the industry of industrials and zero otherwise, **I5** is a dummy variable coded one if firm i is in the industry of property and construct and zero otherwise, **I6** is a dummy variable coded one if firm i is in the industry of resources and zero otherwise, **I7** is a dummy variable coded one if firm i is in the industry of services and zero otherwise, and **I8** is a dummy variable coded one if firm i is in the industry of technology and zero otherwise. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 6

Tests of H1 (Aggregated Measure): the Association between Accounting

Conservatism and the Aggregated Measure of Future Investment Opportunities

$$\text{RANK}_{i,t} = \alpha_0 + \alpha_1 \widehat{\text{CONS}}_{i,t} + \alpha_2 \text{DIVPAY}_{i,t} + \alpha_3 \text{STOCKTURN}_{i,t} + \alpha_4 \text{PROFIT}_{i,t} + \alpha_5 \text{SIZE}_{i,t} + \alpha_6 \text{MKCON}_{i,t} + \alpha_7 \text{EXPENS}_{i,t} + \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$$

		5 RANK (arMBE, GRMVE, EP, and VAR)	
		(N=1397)	
		IV	
	Predicted Sign	Estimate Coefficients	p-value
Intercept		4.4266	<.0001***
$\widehat{\text{CONS}}$	(+)	0.0262	<.0001***
DIVPAY	(+/-)	0.6220	<.0001***
STOCKTURN	(+)	0.0279	0.1939
PROFIT	(+)	1.1815	0.0312**
SIZE	(+/-)	0.0187	0.6719
MKCON	(+/-)	1.7178	0.4884
EXPENS	(+)	-0.1767	0.6331
Fixed Effects:			
Year		Yes	
Industry		Yes	
Adj. R^2		0.1799	
F-value		<.0001***	

Definitions of variables are given below:

Dependent Variable: RANK = the aggregated measure of the future investment opportunity set that calculated by averaging the decile ranking of arMBE, GRMVE, EP, and VAR.

Table 6 (Continued)

Interested variable: $\widehat{\text{CONS}}$ = the estimated value of the conservatism degree from the first stage regression as follows;

$$\widehat{\text{CONS}} = -20.79 - 2.50\text{CEOPOW} + 8.37\text{BIG4} + 9.30\text{AUDCOM} + 0.66\text{AGE} - 5.73\text{LEV} + 2.84\text{SIZE} + 0.53\text{BTM} + 45.59\text{RVOLAT}$$

Where **CEOPOW** = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise, **BIG4** = a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise, **AUDCOM** = the ratio of the number of independent audit committee to the number of total board, **AGE** = the number of years after initial public offering, **LEV** = long-term debts divided by total assets at the end of a fiscal year, **SIZE** = the market value of equity scaled by total assets at the end of a fiscal year, **BTM** = the ratio of book to market value at the end of a fiscal year, **RVOLAT** = the standard deviation of daily returns over a fiscal year.

Control variables: **DIVPAY** = the ratio of annual dividend payment to annual earnings before extraordinary items, **STOCKTURN** = the number of annual common shares traded scaled by the number of common shares outstanding in the fiscal year, **PROFIT** = the ratio of annual operating incomes to total assets, **SIZE** = a natural logarithm of annual sales, **MKCON** = the ratio of a firm's annual revenues to total industry revenue, **EXPENS** = annual selling and administration expenditures divided by annual sales.

Year fixed effects: **Y06** = a dummy variable coded one if firm i is in year 2006, and zero otherwise, **Y07** = a dummy variable coded one if firm i is in year 2007, and zero otherwise, **Y08** = a dummy variable coded one if firm i is in year 2008, and zero otherwise, **Y09** = a dummy variable coded one if firm i is in year 2009, and zero otherwise, **Y10** = a dummy variable coded one if firm i is in year 2010, and zero otherwise, and **Y11** = a dummy variable coded one if firm i is in year 2011, and zero otherwise.

Industry fixed effects: **I2** = a dummy variable coded one if firm i is in the industry of consumer products and zero otherwise, **I4** = a dummy variable coded one if firm i is in the industry of industrials and zero otherwise, **I5** = a dummy variable coded one if firm i is in the industry of property and construct and zero otherwise, **I6** = a dummy variable coded one if firm i is in the industry of resources and zero otherwise, **I7** = a dummy variable coded one if firm i is in the industry of services and zero otherwise, and **I8** = a dummy variable coded one if firm i is in the industry of technology and zero otherwise.

*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 7

Tests of H2.1: the Association between the Estimated Value of Accounting

Conservatism and the Implied Costs of Equity Capital

$$\text{rPEG}_{i,t} = \alpha_0 + \alpha_1 \widehat{\text{CONS}}_{i,t} + \alpha_2 \text{SIZE}_{i,t} + \alpha_3 \text{LEV}_{i,t} + \alpha_4 \text{BTM}_{i,t} + \alpha_5 \text{RVOLAT}_{i,t}$$
$$+ \alpha_6 \text{EVOLAT}_{i,t} + \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$$

	N=393		
	Predicted Sign	Estimate Coefficients	p-value
Intercept		0.4523	0.0082***
$\widehat{\text{CONS}}$	(-)	-0.0000	0.6760
SIZE	(-)	-0.0147	0.0396**
LEV	(+)	0.0927	0.0479**
BTM	(+)	0.0691	0.0003***
RVOLAT	(+)	0.0000	0.3513
EVOLAT	(+)	0.0002	0.8945
Fixed Effects:			
Year			Yes
Industry			Yes
Adj. R^2			0.2370
F-value			<.0001***

Definitions of variables are given below:

Dependent Variable: rPEG = the implied costs of equity capital calculated by Easton (2004) model calculated as follows;

$$\text{rPEG} = \sqrt{(\text{feps2} - \text{feps1})/\text{p0}}$$

where **feps2** = the two-year-ahead consensus forecast of earnings per share, **feps1** = a one-year-ahead consensus forecast of earnings per share, **p0** = closing price per share at year 0.

Table 7 (Continued)

Interested variable: $\widehat{\text{CONS}}$ = the estimated value of the conservatism degree from the first stage regression as follows;

$$\widehat{\text{CONS}} = -20.79 - 2.50\text{CEOPOW} + 8.37\text{BIG4} + 9.30\text{AUDCOM} + 0.66\text{AGE} - 5.73\text{LEV} + 2.84\text{SIZE} + 0.53\text{BTM} + 45.59\text{RVOLAT}$$

Where **CEOPOW** = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise, **BIG4** = a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise, **AUDCOM** = the ratio of the number of independent audit committee to the number of total board, **AGE** = the number of years after initial public offering, **LEV** = long-term debts divided by total assets at the end of a fiscal year, **SIZE** = the market value of equity scaled by total assets at the end of a fiscal year, **BTM** = the ratio of book to market value at the end of a fiscal year, **RVOLAT** = the standard deviation of daily returns over a fiscal year.

Control variables: **SIZE** = a natural logarithm of market value of equity at the end of a fiscal year, **LEV** = the ratio of long-term debt to total assets at the end of a fiscal year, **BTM** = the ratio of book value to market value of equity at the end of a fiscal year, **RVOLAT** = the standard deviation of daily returns in a fiscal year, **EVOLAT** = the standard deviation of annual earnings divided by the mean over the last five years.

Year fixed effects: **Y06** = a dummy variable coded one if firm i is in year 2006, and zero otherwise, **Y07** = a dummy variable coded one if firm i is in year 2007, and zero otherwise, **Y08** = a dummy variable coded one if firm i is in year 2008, and zero otherwise, **Y09** = a dummy variable coded one if firm i is in year 2009, and zero otherwise, **Y10** = a dummy variable coded one if firm i is in year 2010, and zero otherwise, and **Y11** = a dummy variable coded one if firm i is in year 2011, and zero otherwise.

Industry fixed effects: **I2** = a dummy variable coded one if firm i is in the industry of consumer products and zero otherwise, **I4** = a dummy variable coded one if firm i is in the industry of industrials and zero otherwise, **I5** = a dummy variable coded one if firm i is in the industry of property and construct and zero otherwise, **I6** = a dummy variable coded one if firm i is in the industry of resources and zero otherwise, **I7** = a dummy variable coded one if firm i is in the industry of services and zero otherwise, and **I8** = a dummy variable coded one if firm i is in the industry of technology and zero otherwise.

*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 8

Tests of H2.2: the Association between the Implied Costs of Equity Capital and the Aggregated Measure of Future Investment Opportunities

$RANK_{i,t} = \alpha_0 + \alpha_1 rPEG_{i,t} + \alpha_2 DIVPAY_{i,t} + \alpha_3 STOCKTURN_{i,t} + \alpha_4 PROFIT_{i,t}$
$+ \alpha_5 SIZE_{i,t} + \alpha_6 MKCON_{i,t} + \alpha_7 EXPENS_{i,t} + Year \text{ and Industry Fixed Effects} + \varepsilon_{i,t}$

		N=393	
	Predicted Sign	Estimate Coefficients	p-value
Intercept		-2.4524	0.2202
rPEG	(-)	-1.2719	0.0384**
DIVPAY	(+/-)	0.1290	0.0838**
STOCKTURN	(+)	0.0185	0.0031***
PROFIT	(+)	3.6050	<.0001***
SIZE	(+/-)	0.3544	<.0001***
MKCON	(+/-)	-4.4197	0.0056***
EXPENS	(+)	0.7857	0.4007
Fixed Effects:			
Year			Yes
Industry			Yes
Adj. R^2			0.2179
F-value			<.0001***

Definitions of variables are given below:

Dependent Variable: RANK = the aggregated measure of the future investment opportunity set that calculated by averaging the decile ranking of arMBE, GRMVE, EP, and VAR.

Interested Variable: rPEG = the implied costs of equity capital calculated by Easton (2004) model calculated as follows;

$$rPEG = \sqrt{(feps2 - feps1)/p0}$$

where **feps2** = the two-year-ahead consensus forecast of earnings per share, **feps1** = a one-year-ahead consensus forecast of earnings per share, **p0** = closing price per share at year 0.

Table 8 (Continued)

Control variables: **DIVPAY** = the ratio of annual dividend payment to annual earnings before extraordinary items, **STOCKTURN** = the number of annual common shares traded scaled by the number of common shares outstanding in the fiscal year, **PROFIT** = the ratio of annual operating incomes to total assets, **SIZE** = a natural logarithm of annual sales, **MKCON** = the ratio of a firm's annual revenues to total industry revenue, **EXPENS** = annual selling and administration expenditures divided by annual sales.

Year fixed effects: **Y06** = a dummy variable coded one if firm i is in year 2006, and zero otherwise, **Y07** = a dummy variable coded one if firm i is in year 2007, and zero otherwise, **Y08** = a dummy variable coded one if firm i is in year 2008, and zero otherwise, **Y09** = a dummy variable coded one if firm i is in year 2009, and zero otherwise, **Y10** = a dummy variable coded one if firm i is in year 2010, and zero otherwise, and **Y11** = a dummy variable coded one if firm i is in year 2011, and zero otherwise.

Industry fixed effects: **I2** = a dummy variable coded one if firm i is in the industry of consumer products and zero otherwise, **I4** = a dummy variable coded one if firm i is in the industry of industrials and zero otherwise, **I5** = a dummy variable coded one if firm i is in the industry of property and construct and zero otherwise, **I6** = a dummy variable coded one if firm i is in the industry of resources and zero otherwise, **I7** = a dummy variable coded one if firm i is in the industry of services and zero otherwise, and **I8** = a dummy variable coded one if firm i is in the industry of technology and zero otherwise.

*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 9

Additional Analysis: Controlling for Information Asymmetry

$$RANK_{i,t} = \alpha_0 + \alpha_1 \widehat{CONS}_{i,t} + \alpha_2 ASYM_{i,t} + \alpha_3 \widehat{CONS}*ASYM_{i,t} + \alpha_4 DIVPAY_{i,t}$$
$$+ \alpha_5 STOCKTURN_{i,t} + \alpha_6 PROFIT_{i,t} + \alpha_7 SIZE_{i,t} + \alpha_8 MKCON_{i,t} + \alpha_9 EXPENS_{i,t}$$
$$+ \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$$

		RANK (arMBE, GRMVA, EP, and VAR)			
		(N=1397)			
		IV			
		(1)		(2)	
	Predicted Sign	Estimate Coefficients	p-value	Estimate Coefficients	p-value
Intercept		5.0238	<.0001***	4.9210	<.0001***
$\widehat{CONS}$	(+)	0.0276	<.0001***	0.0310	<.0001***
ASYM	(-)	-1.1516	0.0791*	-1.0145	0.1331
$\widehat{CONS}*ASYM$	(?)			-0.0869	0.3973
DIVPAY	(+/-)	0.6086	<.0001***	0.6090	<.0001***
STOCKTURN	(+)	0.0192	0.3838	0.0198	0.3693
PROFIT	(+)	1.0428	0.0596*	1.0313	0.0625*
SIZE	(+/-)	-0.0043	0.9258	0.0004	0.9933
MKCON	(+/-)	1.6426	0.5073	1.3659	0.5847
EXPENS	(+)	-0.2613	0.4836	-0.2715	0.4660
Fixed Effects:					
Year		Yes		Yes	
Industry		Yes		Yes	
Adj. R^2		0.1811		0.1933	
F-value		<.0001***		<.0001***	

Definitions of variables are given below:

Dependent Variable: RANK = the aggregated measure of the future investment opportunity set that calculated by averaging the decile ranking of arMBE, GRMVE, EP, and VAR.

Table 9 (Continued)

Interested variables: ASYM = the annual average of the daily ask-bid spreads scaled by closing prices, $\widehat{\text{CONS}}$ = the estimated value of the conservatism degree from the first stage regression as follows;

$$\widehat{\text{CONS}} = -20.79 - 2.50\text{CEOPOW} + 8.37\text{BIG4} + 9.30\text{AUDCOM} + 0.66\text{AGE} - 5.73\text{LEV} + 2.84\text{SIZE} + 0.53\text{BTM} + 45.59\text{RVOLAT}$$

Where **CEOPOW** = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise, **BIG4** = a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise, **AUDCOM** = the ratio of the number of independent audit committee to the number of total board, **AGE** = the number of years after initial public offering, **LEV** = long-term debts divided by total assets at the end of a fiscal year, **SIZE** = the market value of equity scaled by total assets at the end of a fiscal year, **BTM** = the ratio of book to market value at the end of a fiscal year, **RVOLAT** = the standard deviation of daily returns over a fiscal year.

Control variables: **DIVPAY** = the ratio of annual dividend payment to annual earnings before extraordinary items, **STOCKTURN** = the number of annual common shares traded scaled by the number of common shares outstanding in the fiscal year, **PROFIT** = the ratio of annual operating incomes to total assets, **SIZE** = a natural logarithm of annual sales, **MKCON** = the ratio of a firm's annual revenues to total industry revenue, **EXPENS** = annual selling and administration expenditures divided by annual sales.

Year fixed effects: **Y06** = a dummy variable coded one if firm i is in year 2006, and zero otherwise, **Y07** = a dummy variable coded one if firm i is in year 2007, and zero otherwise, **Y08** = a dummy variable coded one if firm i is in year 2008, and zero otherwise, **Y09** = a dummy variable coded one if firm i is in year 2009, and zero otherwise, **Y10** = a dummy variable coded one if firm i is in year 2010, and zero otherwise, and **Y11** = a dummy variable coded one if firm i is in year 2011, and zero otherwise.

Industry fixed effects: **I2** = a dummy variable coded one if firm i is in the industry of consumer products and zero otherwise, **I4** = a dummy variable coded one if firm i is in the industry of industrials and zero otherwise, **I5** = a dummy variable coded one if firm i is in the industry of property and construct and zero otherwise, **I6** = a dummy variable coded one if firm i is in the industry of resources and zero otherwise, **I7** = a dummy variable coded one if firm i is in the industry of services and zero otherwise, and **I8** = a dummy variable coded one if firm i is in the industry of technology and zero otherwise.

*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 10

Robustness Analysis: Alternative Proxy for Future Investment Opportunities

$$CAPX_{i,t} = \alpha_0 + \alpha_1\widehat{CONS}_{i,t} + \alpha_2DIVPAY_{i,t} + \alpha_3STOCKTURN_{i,t} + \alpha_4PROFIT_{i,t} + \alpha_5SIZE_{i,t} + \alpha_6MKCON_{i,t} + \alpha_7EXPENS_{i,t} + \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$$

$$NEWRANK_{i,t} = \alpha_0 + \alpha_1\widehat{CONS}_{i,t} + \alpha_2DIVPAY_{i,t} + \alpha_3STOCKTURN_{i,t} + \alpha_4PROFIT_{i,t} + \alpha_5SIZE_{i,t} + \alpha_6MKCON_{i,t} + \alpha_7EXPENS_{i,t} + \text{Year and Industry Fixed Effects} + \varepsilon_{i,t}$$

	(1) CAPX (N=1377) IV [a]			(2) NEWRANK (N=1392) IV [b]		
	Predicted Sign	Estimate Coefficients	p-value	Predicted Sign	Estimate Coefficients	p-value
Intercept		-0.0851	0.0045***		0.9622	0.2720
$\widehat{CONS}$	(+)	0.0001	0.0011***	(+)	0.0014	0.0081***
DIVPAY	(+/-)	-0.0032	0.2533	(+/-)	0.4242	<.0001***
STOCKTURN	(+)	-0.0016	0.0149**	(+)	0.0287	0.1403
PROFIT	(+)	0.0807	<.0001***	(+)	1.6423	0.0011***
SIZE	(+/-)	0.0074	<.0001***	(+/-)	0.1915	<.0001***
MKCON	(+/-)	-0.2793	0.0001***	(+/-)	-1.1170	0.6147
EXPENS	(+)	-0.0019	0.8700	(+)	-0.2908	0.3898
Fixed Effects:						
Year			Yes			Yes
Industry			Yes			Yes
Adj. R^2			0.1370			0.2392
F-value			<.0001***			<.0001***

[a] Endogeneity test for CAPX measure (non-tabulate) shows that $\hat{\nu}$ is statistically significant at the 0.05 level, and hence using the IV estimators.

[b] Endogeneity test for NEWRANK measure (non-tabulate) shows that $\hat{\nu}$ is statistically significant at the 0.01 level, and hence using the IV estimators.

Definitions of variables are given below:

Dependent Variables: CAPX = capital expenditures scaled by total assets at the end of a fiscal year. **NEWRANK** = the new aggregated measure of the future investment opportunity set that calculated by averaging the decile ranking of arMBE, GRMVE, EP, VAR, and CAPX.

Table 10 (Continued)

Interested variable: $\widehat{CONS}$ = the estimated value of the conservatism degree from the first stage regression as follows;

$$\widehat{CONS} = -20.79 - 2.50CEOPOW + 8.37BIG4 + 9.30AUDCOM + 0.66AGE - 5.73LEV + 2.84SIZE + 0.53BTM + 45.59RVOLAT$$

Where **CEOPOW** = a dummy variable coded one if the chief executive officers also serve as the chairman of the board, and zero otherwise, **BIG4** = a dummy variable coded one if a firm employs auditors from brand name audit companies, and zero otherwise, **AUDCOM** = the ratio of the number of independent audit committee to the number of total board, **AGE** = the number of years after initial public offering, **LEV** = long-term debts divided by total assets at the end of a fiscal year, **SIZE** = the market value of equity scaled by total assets at the end of a fiscal year, **BTM** = the ratio of book to market value at the end of a fiscal year, **RVOLAT** = the standard deviation of daily returns over a fiscal year.

Control variables: **DIVPAY** = the ratio of annual dividend payment to annual earnings before extraordinary items, **STOCKTURN** = the number of annual common shares traded scaled by the number of common shares outstanding in the fiscal year, **PROFIT** = the ratio of annual operating incomes to total assets, **SIZE** = a natural logarithm of annual sales, **MKCON** = the ratio of a firm's annual revenues to total industry revenue, **EXPENS** = annual selling and administration expenditures divided by annual sales.

Year fixed effects: **Y06** = a dummy variable coded one if firm i is in year 2006, and zero otherwise, **Y07** = a dummy variable coded one if firm i is in year 2007, and zero otherwise, **Y08** = a dummy variable coded one if firm i is in year 2008, and zero otherwise, **Y09** = a dummy variable coded one if firm i is in year 2009, and zero otherwise, **Y10** = a dummy variable coded one if firm i is in year 2010, and zero otherwise, and **Y11** = a dummy variable coded one if firm i is in year 2011, and zero otherwise.

Industry fixed effects: **I2** = a dummy variable coded one if firm i is in the industry of consumer products and zero otherwise, **I4** = a dummy variable coded one if firm i is in the industry of industrials and zero otherwise, **I5** = a dummy variable coded one if firm i is in the industry of property and construct and zero otherwise, **I6** = a dummy variable coded one if firm i is in the industry of resources and zero otherwise, **I7** = a dummy variable coded one if firm i is in the industry of services and zero otherwise, and **I8** = a dummy variable coded one if firm i is in the industry of technology and zero otherwise.

*, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

VITA

Sirada Nuanpradit graduated with a bachelor's degree in accountancy from Thailand's Kasetsart University in 2002. Having earned a scholarship from the Office of the Higher Education Commission of Thailand, Ms. Nuanpradit furthered her study for a master's degree in accountancy at Chulalongkorn University, where she graduated in 2005.

Following the completion of her master's degree, she has worked at Thaksin University as a faculty member of the Faculty of Economics and Business and Administration. In 2011, she was awarded another scholarship by the Office of the Higher Education Commission of Thailand to pursue Ph.D. study and is now a Ph.D. candidate majoring in accounting at Chulalongkorn University. Moreover, in August 2014, Ms. Nuanpradit was invited to present her research work at the 2014 American Accounting Association annual meeting in Atlanta, Georgia, U.S.A.