MACQUARIE
University

Financial Analysts' Cash Flow Forecasts, Cash Flow Asymmetry and Accounting Conservatism

Yizhou Zhang

A thesis in fulfilment of the requirement for the Degree of Doctor of Philosophy

Department of Accounting and Corporate Governance
Faculty of Business and Economics
Macquarie University

November 2018

DECLARATION

I certify that the work in this thesis entitled "Financial Analysts' Cash Flow Forecasts, Cash Flow Asymmetry and Accounting Conservatism" has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

Signed: ________________________

Yizhou Zhang

Dated: 20 November 2018

ACKNOWLEDGEMENTS

Foremost, I would like to express my sincere gratitude to my supervisors, Dr. Meiting Lu and Dr. Charlene Chen, not only for their incalculable amount of support, time and excellent guidance on my thesis but also for their continuous emotional support throughout these years. They let me know what research is, and more importantly helped me restore my self-confidence through constant encouragement. It is their caring, patience, and understanding during these years that enabled me to keep the stress of research at bay, and provided me with an excellent atmosphere for doing research. Without their incredible support and assistance, this thesis would have never been completed.

I am deeply grateful to all people who provided guidance and direction on my ideas underlying the thesis and on the early drafts of the three research papers contained within the thesis. Their thoughtful questions and comments significantly enhanced the quality of my work. I would also like to express my profound gratitude to Macquarie University, especially to the Department of Accounting and Corporate Governance, for granting me support to undertake this PhD thesis.

The support of my family cannot be acknowledged enough. I am dearly grateful to my parents for their endless encouragement and unconditional support, for always cheering me up when I was upset, and for reminding me how beautiful learning is. I want to thank my husband, Yichen Hu, and my parents-in-law for their immense understanding and continuous companionship throughout these years. Thank them for always supporting me in all circumstances. My gratitude also goes to my colleagues and close friends who are always there to listen to my complaints about stress and share my happiness for making progress.

ABSTRACT

This thesis consists of three self-contained research papers in the areas of cash flow forecasts, cash flow asymmetry and accounting conservatism. The first paper (in Chapter Two) examines the factors affecting the issuance, accuracy and usefulness of analysts' cash flow forecasts (CFFs) in Australia. The Australian market is selected due to the dominance of mining firms on the Australian Securities Exchange, the adoption of International Financial Reporting Standards (IFRS) and the prevalence of the direct method to prepare cash flow statements among Australian firms. Given the economic importance of the mining industry in Australia, the results show that analysts are likely to provide CFFs to mining firms with poor financial health and high default risk because investors have particular concerns about mining firms' distress risk. In contrast, analysts' provision of CFFs increases with non-mining firms which remain in sound financial health. The determinants of the issuance and accuracy of analysts' CFFs also differ in the periods before and after the adoption of IFRS. The results add new evidence on the effect of the adoption of IFRS on analysts' cash flow forecasting behaviours. In addition, I find that analysts' CFFs are substantially more accurate than the forecasts generated from time-series models and analysts' earnings forecast accuracy is improved with the presence of CFFs. The findings contribute to the debate on the merits of the presentation of cash flow statements using the direct method and will be welcomed by the Australian Accounting Standard Board, one of few accounting standard setters around the

world which had previously required and now encourages cash flow statements to be presented using the direct method.

Asymmetric behaviour of operating cash flows (CFO) refers to the extent to which cash flows reflect bad news in a timelier manner than good news. It was first documented in Basu (1997) along with the well-known asymmetric behaviour of earnings. Although both asymmetries are pervasive, the former has received far less attention. The second paper (in Chapter Three) of the thesis uncovers the determinants that drive CFO asymmetry. It proposes and examines two new explanations for CFO asymmetry based on sticky cost behaviours and conservatism demands. The results show that cost stickiness and the equity contracting, litigation and taxation demands for conservatism, in addition to firm life cycle, drive CFO asymmetry. However, none of these factors dominates the others, and their combination cannot fully explain the degree of asymmetric timeliness in CFO. Overall, the results provide the first insights regarding CFO asymmetric timeliness.

Given that directors and managers do not always act in shareholders' interests (Adams & Ferreira, 2007; Laux, 2008; Taylor, 2010), the Securities Class Action Litigation in the United States has been perceived to function as a potentially useful mechanism to discipline opportunistic managers and controlling shareholders as it enables individual shareholders to form a class and sue managers and directors for their breaches of SEC rules (Choi, 2004; Hopkins, 2017). However, there is an ongoing debate on the effectiveness of securities class action litigation in regulating securities markets. The third paper (in Chapter Four)

examines the causal link between litigation risk and accounting conservatism. By employing difference-in-differences tests centred on a US circuit court ruling that limited shareholders' ability to sue public firms headquartered in states within the Ninth Circuit, I find a significant decrease in conditional conservatism following the ruling for Ninth Circuit firms relative to unaffected firms headquartered outside the Ninth Circuit. The results are robust to alternative conservatism demand explanations and controls for endogenous self-selection of states of headquarters, event windows, earnings management and the pressures from external monitors. Overall, the evidence is consistent with the corporate governance role of the threat of litigation risk in disciplining managerial financial reporting practices and mitigating agency conflicts, and it adds to the debate on the role of securities class actions in regulating securities markets.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

AASB	Australia Accounting Standards Board
ASX	Australian Securities Exchange
CFF	Cash flow forecasts
CFO	Operating cash flows
FASB	Financial Accounting Standards Board
GAAP	Generally accepted accounting principles
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
SGI	Re: Silicon Graphics Inc. Securities Litigation
U.S.	United States of America

CHAPTER ONE

OVERVIEW OF THE THESIS

1.1 Background, Aims and Objectives

Operating cash flow (CFO hereafter) plays an essential role in providing useful financial information for decision making. The past two decades have witnessed an increasing prevalence of the provision of cash flow forecasts (CFFs hereafter), in addition to earnings forecasts and investment recommendations, by financial analysts in many countries around the world (e.g. DeFond & Hung, 2003, 2007). Asymmetric behaviour of CFO refers to the extent to which cash flows reflect bad news in a timelier manner than good news. It was first documented in Basu (1997) along with the well-known asymmetric behaviour of earnings. Despite the pervasiveness of CFO and earnings asymmetries, the former has received far less attention. Given that cash flows are the key inputs in valuation models, a deeper understanding of the attributes of cash flows is therefore of particular importance to market participants.

While prior literature has examined CFFs from various perspectives in the United States, the provision of analysts' CFFs is more pervasive in Australia[1] and there are notable differences in institutional structures between the U.S. and Australia. In particular, the Australian context provides a unique setting for understanding the driving force behind

---

[1] This paper shows that, more than 92.39% of Australian listed firms followed by financial analysts have earnings forecasts issued by analysts along with CFFs, which is distinctive from the U.S. evidence provided in extant literature. For example, of the 34,787 individual analyst earnings forecasts in their sample over 1993-1999, DeFond and Hung (2003) find that 7% are supplemented by cash flow forecasts. The proportion increases from 1% in 1993 to 15% in 1999. Similarly, by examining all available annual earnings forecasts for the U.S. firms from the I/B/E/S detail files from 2000 through 2008, Bilinski (2014) finds that 9.3% of the earnings forecasts are accompanied by cash flow estimates.

the provision, accuracy and usefulness of CFFs, for several reasons. First, around 40 percent of firms listed on the Australian Securities Exchange (ASX) are from the mining industry. Mining firms tend to have a greater distress risk and information asymmetry, which gives rise to higher price volatility among mining firms (Gallery, Gallery, & Nelson, 2008). Investors would benefit more from CFFs in supplementing earnings forecasts and thereby have a higher demand for CFFs. However, from the supply-side perspective (i.e. analyst incentives and capabilities), higher uncertainty and information asymmetry increase analysts' information acquisition and processing costs and thus discourage analysts to provide CFFs (Bilinski, 2014). Second, the adoption of International Financial Reporting Standards (IFRS) in Australia since 2005 has the potential to change the association between current accounting earnings and future cash flows (Atwood, Drake, Myers, & Myers, 2011), analysts' abilities to predict future performance (Byard, Li, & Yu, 2011) and the information environment (Chalmers, Clinch, Godfrey, & Wei, 2012; Horton, Serafeim, & Serafeim, 2013), which could affect analysts' cash flow forecasting behaviours and performance. Third, while the majority of firms in the U.S. use the indirect method to prepare cash flow statements, most Australian firms prepare cash flow statements using the direct method. Presenting cash flow statements using the direct method can reduce analyst information processing costs and forecast errors (Haber & Wallace, 2017) and therefore motivate analysts to issue CFFs along with earnings forecasts. Fourth, relative to the U.S., Australia has a significantly smaller stock exchange by market capitalisation with a high concentration of trading volume among large firms, leading to higher information asymmetry and presumably greater investor demand for cash flow information (Fleming, Heaney, & McCosker, 2005). Overall, given that institutional structure exerts influences on the incentives and behaviours of both internal management and external market participants (Bushman & Piotroski, 2006), an empirical examination of financial analysts' cash flow forecast behaviour in the Australian setting is warranted.

Further, there is an ongoing debate about the role of securities class actions in regulating securities markets. Since the director and managers have opportunistic incentives to deviate from the best practices that serve for the best interests of shareholder (Adams & Ferreira, 2007; Laux, 2008; Taylor, 2010), the Securities Class Action Litigation in the United States has been perceived to be a potentially useful mechanism to discipline opportunistic managers and controlling shareholders as it enables individual shareholders to form a class and sue managers and directors for violating SEC rules (Choi, 2004; Hopkins, 2017). However, whether securities class actions function as intended is still an open question empirically (Hopkins, 2017).

Theoretically, litigation risks create incentives for managers and auditors to engage in conservative practices (Watts, 2003a, 2003b). This stems from the probability of securities litigation for firms and auditors being much higher when earnings and net assets are overstated than when understated; therefore, the expected litigation costs are higher when companies overstate their earnings than when they understate their earnings. Accounting conservatism has long been perceived as an important attribute of accounting information in financial statements (Watts, 2003a; Watts & Zimmerman, 1986) as well as a corporate governance mechanism which can help constrain managerial opportunism and mitigate agency problems (Mora & Walker, 2015; Ruch & Taylor, 2015; Watts, 2003a, 2003b). Therefore, litigation risks arguably help mitigate agency problems through incentivising managers and directors to engage in more conservative financial reporting practices. Prior studies examining the relation between litigation risks and accounting conservatism generally do not explore causal links. Thus, it is difficult to rule out the possibility that factors other than litigation demand drive conservatism. This is partly attributed to the endogenous nature of conservatism that makes it difficult to establish a causal link between the threat of shareholder litigation and conservatism.

With these in mind, the following research objectives are addressed in this thesis:

- to explore the factors affecting the issuance, accuracy and usefulness of analysts' cash flow forecasts in Australia;
- to uncover the determinants that drive operating cash flow asymmetry;
- to examine the influence of the threat of litigation risk on corporate financial reporting behaviour.

These objectives are addressed in three self-contained research papers presented in this thesis respectively. Details for each paper are elaborated in the following subsections.

1.1.1 Paper 1 (Chapter Two): Australian evidence on analysts' cash flow forecasts: issuance, accuracy and usefulness

Given that Australia has experienced a considerable increase in the provision of analysts' CFFs in the past two decades and has several unique institutional structures, this study empirically examines the factors affecting the issuance, accuracy and usefulness of analysts' CFFs in Australia for the period of 1993–2015. In particular, this paper addresses the following research questions in the Australian context:

1) What factors influence analysts' decision to issuance cash flows forecasts?
2) What factors exert influences on the accuracy of analysts' cash flow forecasts?
3) Are analysts' cash flow forecasts useful to both investors and analysts?

Analyst forecast data are sourced from the I/B/E/S Summary and Detail History International Edition database. Financial statement information for ASX-listed firms is obtained from the Morningstar (FinAnalysis) database. Stock price data are sourced from the Share Price and Price Relatives (SPPR) database and institutional holdings data is obtained from *Thomson Reuters*. The final sample includes 40,675 analyst-firm-year observations for the period of 1993–2015.

Paper 1 (Chapter Two) presents first comprehensive empirical evidence for the factors affecting the issuance, accuracy and usefulness of analysts' cash flow forecasts in Australia. Extant literature *separately* investigates the determinants of the issuance of CFFs by analysts from both demand- and supply-side perspectives. The findings in this paper lend support to both the demand-side and supply-side explanations, highlighting the importance of considering demand- and supply-side factors jointly when investigating the driving force of the provision of CFFs. Further, various views are provided in the literature concerning the usefulness of CFFs to investors and analysts. The findings of this paper show that analysts' CFFs are significantly more accurate than the forecasts generated from time-series models, and that their earnings forecasts accompanied by CFFs are more accurate than those issued without CFFs, which is due to that analysts obtain a better understanding of the persistence of earnings components for future earnings.

1.1.2 Paper 2 (Chapter Three): Economic determinants of cash flow asymmetric timeliness

In the last decade, investors and the public have attached increasing significance to reported CFO. In contrast, the fact that CFO exhibits asymmetric timeliness has attracted very limited attention since being documented by Basu (1997), and the factors driving CFO asymmetry have been largely unexplored to date. While several explanations are provided in the existing literature (e.g. Collins, Hribar, & Tian, 2014; Steele, 2011), these explanations focus on how managers adjust operations in response to bad versus good economic news. They largely ignore the governance and monitoring role played by various stakeholders within and outside the firm. In addition, these studies provide mixed evidence and test the proposed explanations without controlling for alternative explanations.

Paper 2 (Chapter Three) attempts to shed light on this puzzle through a comprehensive analysis of CFO asymmetry. In particular, this study proposes and examines two new explanations for CFO asymmetric timeliness, namely (i) cost stickiness and (ii) conservatism demands, along with the two existing explanations based on firm life cycle (Collins et al., 2014) and product pricing (Steele, 2011). It also compares the relative importance of these factors in driving CFO asymmetry, and the abilities of different explanations in explaining cash flow versus accruals asymmetric timeliness. To facilitate the empirical analyses, accounting and stock price data are obtained from the merged CRSP and COMPUSTAT databases for the period of 1988–2016.

This paper provides empirical evidence on the causes of the attributes (asymmetric timeliness) of CFO and earnings. The findings of this paper are important to investors, regulators and financial practitioners. Since cash flows are the key inputs in valuation models, CFO asymmetry therefore has particular importance for financial analysts in improving the forecasting accuracy of cash flows and when they conduct asset pricing and security valuations.

1.1.3 Paper 3 (Chapter Four): Securities class actions and conditional conservatism

The extant empirical findings on the relation between litigation risk and conditional conservatism are in general not of a causal nature and thus make it difficult to rule out the possibility that conservatism is driven by factors other than litigation demand. Establishing the causal link between litigation risk and accounting conservatism is empirically challenging due to the endogenous nature of the conservative reporting decisions. Distinguished from prior studies, Paper 3 (Chapter Four) extends this literature by treating the court ruling in Re: Silicon Graphics Inc. Securities Litigation (SGI) issued on July 2, 1999, by the U.S. Ninth Circuit Court of Appeals, as a proxy for changes in firms' litigation risk and study how conservative financial reporting changes after the court ruling decision. In particular, the court ruling has made it easier for public firms to defend against security class actions and therefore lowered directors' incentive to monitor financial reporting. The study examines whether there is a reduced degree of a firm's conservative reporting after the court ruling decision. It also explores whether the impact of the reduced litigation risk on conservatism can be explained by other conservatism demands documented in prior studies (Watts 2003a, 2003b) and how such impact varies across a range of firm-specific characteristics.

The empirical analysis utilises accounting and stock price data obtained from the merged CRSP and COMPUSTAT databases in the period from 1995 to 2002. The final treatment sample comprises 5,740 firm-year observations while the control sample comprises 25,616 observations over the same period.

This paper adds to the literature by establishing a causal link between an *ex ante* litigation risk and accounting conservatism. The natural experiment utilised in this study helps significantly mitigates endogeneity concerns and enable me to attribute changes in the reduction in conservatism surrounding the court ruling decision to the changes in shareholder litigation risk. Furthermore, the evidence of this study adds to the debate on the role of securities class actions in regulating securities markets.

1.2 Contributions of the Thesis

This thesis makes several important contributes to the literature. First, by presenting the first comprehensive Australian evidence regarding the determinants of the issuance and accuracy of analysts' CFFs and the usefulness of analysts' CFFs, Paper 1 adds to the growing literature examining analysts' CFFs and provides evidence outside the U.S. The results highlight the importance of considering the institutional and regulatory structure of the market where the driving force behind the provision, accuracy and usefulness of analysts' CFFs is investigated. Specifically, it provides evidence on the differential factors affecting analysts' decision to issue CFFs and influencing the accuracy of their CFFs for mining versus non-mining firms given the economic importance of mining industry in Australia, and for the pre- and post-IFRS periods given that the adoption of IFRS has potential to change the information environment and analysts' abilities to predict future performance.

Second, by documenting the superiority of analysts' CFFs over the forecasts produced by time-series models and analysts' improved ability to predict future earnings arising from their provision of CFFs in Australia, Paper 1 corroborates the incremental value of the issuance of CFFs in addition to earnings forecasts and thus provides new evidence on the ongoing debate regarding the usefulness of CFFs. These findings should be of interest to both academics and market participants who are interested in evaluating analysts' CFFs in Australia.

Third, Paper 2 contributes to the emerging literature on cash flow asymmetry (Banker, Basu, Byzalov, & Chen, 2016; Collins et al., 2014; Oded & Weiss, 2013; Steele, 2011). The study proposes and tests two new explanations for CFO asymmetry – (i) cost stickiness and (ii) conservatism demands, in addition to testing the two existing explanations (Collins et al., 2014; Steele, 2011). In addition, the study compares the relative importance of these factors and finds that these factors in combination better explain CFO asymmetry, but no one factor dominates the others.

Finally, Paper 3 contributes to the understanding of the litigation demand for accounting conservatism by documenting a causal link between an *ex ante* litigation risk and accounting conservatism. Unlike contracting demands for accounting conservatism, the litigation explanation is a more recent phenomenon and has been considered as a significant driver of conservatism in recent years (García Lara, García Osma, & Penalva, 2009). To examine whether a causal relation exists between litigation risk and conservatism, this study utilises a natural experiment which significantly mitigates endogeneity concerns and enables me to attribute changes in the reduction in conservatism surrounding the court ruling decision to the changes in shareholder litigation risk.

1.3 Organisation of the Thesis

The remainder of the thesis is organized as follows. Chapter Two to Four comprise the three self-contained papers. The relevant tables and references for each chapter are incorporated into the respective chapter. Chapter Five is the concluding chapter which summarizes the findings of each of the three papers and draws conclusions and implications. It also discusses the limitations of the thesis and suggestions for future research.

CHAPTER TWO

(Paper One)

AUSTRALIAN EVIDENCE ON ANALYSTS' CASH FLOW FORECASTS: ISSUANCE, ACCURACY AND USEFULNESS

2.1 Introduction

The past two decades have witnessed an increasing prevalence of the provision of cash flow forecasts (CFFs hereafter), in addition to earnings forecasts and investment recommendations, by financial analysts in many countries around the world (e.g. DeFond & Hung, 2003, 2007). The great concern over earnings quality and the consequent rise in demand for CFFs among market participants, triggered by high-profile accounting debacles involving earnings manipulation (such as Enron, WorldCom and Tyco) in the early 2000s, has been viewed as the driving force for this trend (e.g. Pae & Yoon, 2012). Similar major corporate scandals and financial misconduct were also revealed in Australia in roughly the same period (Houghton, Kend, & Jubb, 2013).[2] While prior literature has examined CFFs from various perspectives in the United States, the provision of analysts' CFFs is more pervasive in Australia and there are notable differences in institutional structures between the U.S. and Australia. Given such differences, this study examines the factors which influence analysts' decisions regarding whether to issue CFFs and the factors affecting the accuracy of CFFs. It also investigates the extent to which CFFs are useful to investors and analysts in the Australian context.

The Australian context provides a unique setting for understanding the driving force behind the provision, accuracy and usefulness of CFFs for several reasons. First, around 40 percent of firms listed on the Australian Securities Exchange (ASX) are from the mining industry. Mining firms tend to have a greater distress risk and information asymmetry,

[2] HIH Insurance, One.Tel and Harris Scarfe are prominent examples.

which gives rise to higher price volatility among mining firms (Gallery et al., 2008). Investors would benefit more from CFFs in supplementing earnings forecasts and thereby have a higher demand for CFFs. However, from the supply-side perspective (i.e. analyst incentives and capabilities), higher uncertainty and information asymmetry increase analysts' information acquisition and processing costs and thus discourage analysts to provide CFFs (Bilinski, 2014).

Second, the adoption of International Financial Reporting Standards (IFRS) in Australia since 2005 has the potential to change the association between current accounting earnings and future cash flows (Atwood et al., 2011), analysts' abilities to predict future performance (Byard et al., 2011) and the information environment (Chalmers et al., 2012; Horton et al., 2013), which could affect analysts' cash flow forecasting behaviours.[3]

Third, while the majority of firms in the U.S. use the indirect method to prepare cash flow statements, most Australian firms prepare cash flow statements using the direct method.[4] Presenting cash flow statements using the direct method can reduce analyst information processing costs and forecast errors (Haber & Wallace, 2017) and therefore motivate analysts to issue CFFs along earnings forecasts for Australian firms.

---

[3] The impact of IFRS adoption in Australia is discussed in more detail in Jones and Higgins (2006), Benson, Clarkson, Smith, and Tutticci (2015), Chang, Jackson, and Wee (2017) and Linnenluecke, Birt, Chen, Ling, and Smith (2017).

[4] Australian Accounting Standards Board (AASB) 1026, *Statement of Cash Flows*, required cash flow statement to be presented using the direct method. This standard was withdrawn in January 2005 and replaced by AASB 107, *Cash Flow Statements*, equivalent to International Accounting Standard 7. AASB 107 allows a choice of the direct or indirect method of presenting cash flow statement. Bond, Bugeja, and Czernkowski (2012) find that the majority of Australian firms choose to continue to present cash flow statements using the direct method.

Fourth, relative to the U.S., Australia has a significantly smaller stock exchange by market capitalisation with a high concentration of trading volume among large firms, leading to higher information asymmetry and presumably greater investor demand for cash flow information (Fleming et al., 2005). Taken together, given that institutional structure exerts influences on the incentives and behaviours of both internal management and external market participants (Bushman & Piotroski, 2006), this study empirically examine the factors motivating analysts to issue CFFs, the factors affecting the accuracy of CFFs, and the usefulness of CFFs to market participants in the Australian setting.

Using a sample of CFFs for Australian firms in the period 1993–2015, I begin by investigating both the demand-side and supply-side factors which affect analysts' decisions regarding whether to issue CFFs with earnings forecasts. The existing literature *separately* examines analyst incentives to issue CFFs based on the demand hypothesis (e.g. Call, Chen, & Tong, 2009, 2013; DeFond & Hung, 2003, 2007) and the supply-side explanation (Bilinski, 2014; Ertimur & Stubben, 2005; Pae & Yoon, 2012), with empirical evidence lending support to both explanations. However, it remains unanswered on the relative importance of the demand-side or supply-side factors in jointly determining the provision of CFFs. I expect that analysts' propensity to issue CFFs is jointly determined by both demand and supply-side factors.

The results show that the considerable increase in the provision of analysts' CFFs in the Australian market is driven by both demand- and supply-side factors. Analysts tend to issue CFFs to firms with large accruals, poor financial health and rich information environments in order to meet investor demand, and they are disinclined to provide CFFs to firms with low default risk given reduced investor demand. Several supply-side factors —including the concerns of analyst information collection costs and the difficulties of issuing quality CFFs to firms with high degrees of earnings volatility, analyst incentives to generate trading and investment banking activities, analyst workload and brokerage resources—also influence the issuance of CFFs in addition to the demand force.

In the additional analyses, I find that analysts are likely to provide CFFs to mining firms with poor financial health and high default risk given that investors have particular concerns about mining firms' distress risk. In contrast, analysts' provision of CFFs increases in non-mining firms which remain in sound financial health.[5] It is also found that analysts' propensity to issue CFFs to firms with large accruals, large size and low institutional ownership is more pronounced in the post-IFRS period. The findings lend support to both the demand-side and supply-side explanations, confirming the argument that both the demand by market participants and supply-side factors shape analysts' decisions regarding whether to issue CFFs. The findings highlight the importance of considering

5 The results in Table 2.8 indicate that mining firms in Australia with poor financial health are more likely to provide CFFs, but the results do not hold for non-mining firms. The results suggest that, for firms with poor financial health and a higher probability of bankruptcy, the market and investors are likely to require the provision of CFFs, which is more reliable and useful in assessing a firm's underlying performance, in addition to accounting earnings. Accordingly, financial analysts are more likely to provide CFFs to meet such demand. The results are important in the context of Australia on the grounds that in Australia, mining firms dominate the listings on the ASX (accounting for around 40%), and that firms in the mining industry have different characteristics compared with those in other industries.

factors on both demand and supply sides as well as the institutional structure of the market when investigating the driving force behind the provision of CFFs.

Next, I investigate the factors influencing the accuracy of analysts' cash flow forecasts. I find that the accuracy of analysts' CFFs is jointly determined by several analyst, forecast and firm characteristics. Consistent with prior studies, the accuracy of analysts' CFFs is positively associated with analysts' cash flow-specific forecasting experience and the size of brokerage houses and is negatively associated with the number of firms which analysts follow, as well as with forecast horizon and dispersion. In addition, I find that analysts following more industries and working for larger brokerage houses have more accurate cash flow forecasts and that this effect is only pronounced in the post-IFRS period. The results suggest that the adoption of IFRS changes the information environment and analysts' abilities to predict future performance (Benson et al., 2015; Byard et al., 2011; Chalmers et al., 2012; Chang et al., 2017; Cotter, Tarca, & Wee, 2012; Linnenluecke et al., 2017).

Finally, I examine the usefulness of CFFs to investors and analysts in Australia. Prior literature presents mixed evidence in this regard. On the one hand, many studies suggest that analysts' CFFs are useful to investors in pricing accruals and that they assist analysts in forecasting earnings and enhancing career prospects. For example, analysts' CFFs assist investors in appropriately pricing accruals (Gordon, Petruska, & Yu, 2014; Mohanram, 2014; Radhakrishnan & Wu, 2014). Analysts' earnings forecasts are more accurate when they also issue CFFs and analysts who issue CFFs together with earnings forecasts are less likely to be fired (Call et al., 2009). On the other hand, Givoly, Hayn, and Lehavy (2009) argue that analysts' CFFs lack sophistication in that analysts fail to consider working capital and other accrual adjustments when forecasting cash flows. Bilinski (2014) finds no incremental market reaction to CFFs when CFFs are disclosed with other analyst information. In addition, Bradshaw, Richardson, and Sloan (2001) show that analysts do not fully understand the persistence and value implications of accruals.

In the Australian context, most firms present cash flow statements using the direct method. Direct method cash flow disclosures are easier for users to construct forecasts of cash flows and more informative in predicting future cash flows and earnings (Farshadfar & Monem, 2013; Orpurt & Zang, 2009). Using the Australian setting, this study compares analysts' ability to forecast cash flows to the forecasts produced by time-series models. It then investigates whether the provision of CFFs helps analysts better understand a full set of financial statements and improve their accuracy in earnings forecasts. The results show that analysts' CFFs are significantly more accurate than the forecasts generated from time-series models. Their earnings forecasts accompanied by CFFs are more accurate than those issued without CFFs and analysts achieve a better understanding of the persistence of earnings components for future earnings. The superiority of the accuracy of analysts' earnings forecast when they also issue CFFs can be attributed to analysts' having a better understanding of a full set of financial statements and earnings components, as analysts take a structured approach to forecast cash flows.

This study makes several contributions. First, by presenting the first comprehensive Australian evidence regarding the determinants of the issuance and accuracy of analysts' CFFs and the usefulness of analysts' CFFs, the study adds to the growing literature examining analysts' CFFs and provides evidence from outside the U.S. The results highlight the importance of considering the institutional and regulatory structure of the market where the driving force behind the provision, accuracy and usefulness of analysts' CFFs is investigated. Specifically, I find evidence on differential factors which affect analysts' decisions regarding the issuance of CFFs and those influencing the accuracy of their CFFs. Given the economic importance of the mining industry in Australia, I compare the results for mining vs. non-mining firms. I also find the determinants of the issuance and accuracy of analysts' CFFs differ in pre- and post-IFRS periods. The results add new evidence on the effect of IFRS adoption on analysts' cash flow forecasting behaviours and performance.

Second, the findings of this study contribute to the debate on the merits of the presentation of cash flow statements using the direct method. Given that direct method cash flow disclosures are informative in predicting future performance and that most Australian firms use the direct method to prepare their cash flow statements, the results show the superiority of analysts' CFFs over the forecasts produced by time-series models and demonstrate that the accuracy of analysts' earnings forecasts is improved when analysts also issue CFFs. The results will be welcomed by the Australian Accounting Standard Board, one of the few accounting standard setters in the world which had previously required and now encourages cash flow statements to be presented using the direct method.

Third, prior studies which examine the determinants of the issuance of CFFs focus either on demand-side factors or on supply-side explanations. The results in this study show that it is the net effect of both the demand side (i.e. investor demand) and the supply side (i.e. analyst attributes) which jointly determines the provision of CFFs, and the study extends this line of literature by highlighting the importance of considering factors on both sides when testing analysts' decisions regarding whether to issue CFFs.

Finally, by documenting the superiority of analysts' CFFs over the forecasts produced by time-series models and analysts' improved ability to predict future earnings arising from their provision of CFFs in Australia, this study corroborates the incremental value of the issuance of CFFs in addition to earnings forecasts and thus provides new evidence on the ongoing debate regarding the usefulness of CFFs. The findings should be of interest to both academics and market participants when evaluating analysts' CFFs in Australia.

The rest of the paper proceeds as follows. Section 2.2 discusses the related literature and empirical predictions. Section 2.3 describes sample construction and research design. The empirical results are provided in Section 2.4. Additional tests are performed in Section 2.5, and Section 2.6 concludes.

2.2 Related Literature and Empirical Predictions

2.2.1 Factors motivating analysts to issue cash flow forecasts

Two streams of literature *separately* investigate the determinants of the issuance of CFFs by analysts from the demand and supply-side perspectives. DeFond and Hung (2003) propose the demand hypothesis and argue that cash flow information is often demanded by investors to supplement earnings information, especially when earnings quality is called into question. They suggest that the increasing trend of the provision of CFFs in recent years is in response to investor demand given the increasing concern on earnings quality and operating cash flows being considered less subjective and less likely to be manipulated than accounting accruals. DeFond and Hung (2003) find that the analysts' propensity to issue CFFs increases when firms have a large magnitude of accruals, complex accounting choices, high variability of earnings, high capital intensity and poor financial health.

However, while the demand hypothesis has had some success in explaining why analysts provide CFFs, it has largely ignored the fact that CFFs are only considered useful to market participants if they are precise and of sufficient quality compared with earnings estimates. In other words, the provision of CFFs can also be driven by supply-side factors such as analyst incentives, capabilities and experiences (Ertimur & Stubben, 2005; Pae & Yoon, 2012). Bilinski (2014) argues that, when a firm's earnings quality is low, analysts confront many challenges in predicting accruals and cash flows. As CFFs becomes increasingly inaccurate compared to earnings estimates, the usefulness of CFFs to investors decreases, which disinclines analysts from providing CFFs. From an analyst perspective, the provision of low quality CFFs is detrimental to their reputation and career prospects given that the low quality of CFFs is viewed as a signal of analyst incompetence (Ertimur, Mayew, & Stubben, 2011). Bilinski (2014) finds that analysts are indeed unlikely to issue CFFs to firms with low earnings quality, contrary to the findings of DeFond and Hung (2003).

While empirical evidence lends support to both the demand-side and supply-side explanations, there is no conclusive evidence provided on the relative importance of the demand-side or supply-side factors in jointly determining the issuance of CFFs by analysts. In fact, DeFond and Hung (2003) and others test the demand hypothesis, but completely ignore the supply-side factors. Bilinski (2014) examines several supply-side factors such as analyst characteristics, but ignores important demand-side factors proposed by DeFond and Hung (2003). This study explores the factors affecting analysts' decisions regarding whether to issue CFFs from both the demand-side and supply-side perspectives and examines the relative importance among those factors in jointly determining the provision of CFFs in the Australian market. The market is characterised by the dominance of mining firms on the ASX and the prevalence of using the direct method to prepare cash flow statements by Australian firms.

Market return

Prior research suggests that one main factor motivating analysts to initiate coverage is to generate trading and investment banking activities for their brokerage houses, which in turn increases their compensation (Bilinski, 2014; Groysberg, Healy, & Maber, 2008; Irvine, 2003). A firm's poor performance could incentivise analysts to discontinue their coverage due to their fear of losing potential investment banking business and trading commissions (Darlin, 1983; Gibson & Wall, 1984; Siconolfi, 1992). Hayes (1998) and Shon and Young (2011) find a strong negative association between economic performance proxied by stock returns and the likelihood of analysts dropping coverage. Similarly, McNichols and O'Brien

(1997) find that analysts are more likely to provide forecasts and recommendations for stocks about which they have favourable views. In this paper, I use market returns as a proxy for a firm's economic performance. I expect a positive association between a firm's stock return and the likelihood of analysts issuing CFFs with earnings forecasts from the supply-side perspective.

Magnitude of accruals

Consistent with the demand-side perspective, DeFond and Hung (2003) posit that the inherent subjectivity and uncertainty associated with accruals has a negative impact on earnings quality as perceived by market participants, and in turn increases investor demand for the provision of CFFs to supplement earnings forecasts. It is therefore expected that investor demand for CFFs is greater for firms with higher accruals in magnitude. In response to such demand, analysts have greater incentives to supply CFFs.

On the other hand, lower earnings quality resulting from the larger magnitude of accruals reduces the accuracy and usefulness of CFFs. Given that analysts are concerned about the negative impact of the provision of low quality CFFs on their reputation and career prospects, analysts are disinclined to issue CFFs (Bilinski, 2014). Accordingly, the large magnitude of accruals is likely to reduce the supply of CFFs. I therefore predict that the effect of the magnitude of accruals on the provision of CFFs is mixed based on the demand-side and supply-side explanations.

Earnings volatility

DeFond and Hung (2003) and Tucker and Zarowin (2006) suggest that earnings with higher volatility are likely to be noisier and considered as being lower quality, giving rise to investor demand for cash flow information to gain additional insights. From the demand-side perspective, greater earnings volatility is expected to increase the benefits of supplementing earnings forecasts with CFFs, enhancing investor demand for CFFs. In support of the demand hypothesis, DeFond and Hung (2003) find a positive relation between earnings volatility and the provision of CFFs by analysts. From the supply-side viewpoint, analysts are likely to be disinclined to provide CFFs because analysts confront more difficulties in forecasting cash flows for firms with higher earnings volatility and hence reduce the accuracy and usefulness of their CFFs. Based on both the demand-side and supply-side explanations, I predict that the effect of earnings volatility on the likelihood of analysts issuing CFFs with earnings forecasts is unclear.

Capital intensity

Firms with high capital intensity rely heavily on operating cash flows for the maintenance and replacement of their fixed assets. Market participants consider CFFs useful for firms with high levels of capital expenditures, fixed assets and asset utilisation (DeFond & Hung, 2003). This is because investors of those firms are concerned with the liquidity of the firms given that the probability of financial distress increases as asset liquidity declines (DeFond & Hung, 2003; Stickney, Brown, & Wahlen, 2004). I predict that capital intensity is positively associated with analysts' propensity to issue CFFs with earnings forecasts from the demand-side perspective.

Financial health

From the demand-side perspective, investors regard CFFs are more useful than earnings estimates for firms experiencing financial distress, which can motivate analysts to issue CFFs to examine a firm's solvency and liquidity when distress risk is high (DeFond & Hung, 2003). I thus predict a negative association between financial health and the likelihood of analysts issuing CFFs with earnings forecasts based on the demand-side explanation.

Firm size

Previous research suggests the demand for analyst information increases with firm size (Lang & Lundholm, 1996). DeFond and Hung (2007) find a positive association between the issuance of CFFs and firm size given that larger firms are likely to gain more attention from investors, increasing investor demand for CFFs. On the other hand, a richer information environment in which larger firms operate may reduce investor demand for CFFs if other information sources are sufficient for investors to interpret firms' earnings information (Bilinski, 2014). From the supply-side perspective, a richer information environment reduces the cost of information acquisition and motivates analysts to issue CFFs (Hail, 2007). Taken together, I predict that the effect of firm size on the provision of CFFs is mixed from the demand-side perspective, but positive from the supply-side perspective.

Number of analysts following a firm

From the demand-side viewpoint, DeFond and Hung (2007) find that analyst coverage is positively associated with analysts' propensity to issue CFFs. This is because greater analyst activities may result in a more competitive environment which provides analysts with incentives to generate additional information, such as CFFs, to meet investor demand to complement earnings information. However, a richer information environment, as proxied by the number of analysts following a firm, may reduce investor demand for CFFs if they have other information sources to assess firms' future prospects. From the supply-side perspective, a richer information environment increases the likelihood that analysts will provide CFFs with earnings estimates given the reduced cost of producing CFFs. I predict that the effect of analyst coverage on the provision of CFFs can be explained by both demand- and supply-side explanations.

Institutional holdings

Previous research shows that firms with larger institutional ownership enjoy higher bond ratings and lower bond yields (Bhojraj & Sengupta, 2003). From the demand-side perspective, a lower likelihood of default should reduce investor demand for cash flow information. But from the supply-side perspective, O'Brien and Bhushan (1990) argue that analysts are more likely to issue forecasts to firms with higher institutional holdings as institutions are willing to pay for their services. Consequently, I predict that the effect of the level of institutional holdings on analysts' propensity to issue CFFs is unclear based on both the demand-side and supply-side explanations.

Analyst workload and forecasting experience

From the supply-side perspective, Bilinski (2014) argues that the more firms for which an analyst provides coverage, the less time he will devote to providing complementary CFFs. Bilinski (2014) expects a negative association between an analyst's workload and the provision of CFFs in addition to earnings forecasts but finds no significant association between them. Conversely, Lees (1981) concludes that there are economies of scale to following firms within the same industry. O'Brien and Bhushan (1990) further suggest that if there are economies of scale in learning about firms' operations, then the research cost per firm declines with the number of firms in the industry. Based on both the demand-side and supply-side explanations, I predict that analyst workload has a mixed effect on the provision of CFFs.

Analyst forecasting skills and knowledge improve over time as they gain experience (Clement, 1999). Bilinski (2014) argues that experienced analysts should have the forecasting skill and ability to produce quality CFFs, which motivate them to issue CFFs. I therefore predict a positive association between analyst forecasting experience and the likelihood of analysts issuing CFFs with earnings forecasts based on the supply-side explanation.

Brokerage resources

From the supply-side standpoint, the number of analysts employed by a brokerage house indicates broker quality and resources available to analysts (Bilinski, 2014). Having access to a large resource pool at the brokerage house can aid analysts in forecasting cash flows, and thus motivate analysts to provide CFFs with earnings forecasts (Bilinski, 2014). I predict that the number of analysts employed by a brokerage house is positively associated with the likelihood of analysts issuing CFFs with earnings forecasts from the supply-side perspective.

2.2.2 Determinants of analysts' cash flow forecast accuracy

The accuracy of CFFs is important because CFFs are crucial for firm valuation. Call et al. (2013) find that in the short window around analysts' CFFs, investors adjust stock prices in a manner consistent with these CFFs, providing new information to the market even after controlling for analysts' earnings forecast revisions which occur on the same day. Mohanram (2014) and Gordon et al. (2014) find that the mitigating effect of CFFs on accrual mispricing increases with the accuracy of these CFFs. Their findings suggest that if investors utilise analysts' CFFs in their estimations of future earnings, then more accurate CFFs will help them price accruals more rationally. The accuracy of CFFs is also critical for analysts as their reputation and career prospects are largely affected by their forecasting performance. For example, the likelihood of analyst turnover is lower for analysts who provide more accurate CFFs (Call et al., 2009; Pandit, Willis, & Zhou, 2012).

Hodder, Hopkins, and Wood (2008) argue that the presentation of cash flow statements using the indirect method is unnecessarily complex, causing information processing problems, increased forecast errors and disagreement among analysts. In contrast, preparing cash flow statements using the direct method can eliminate any accrual effects generated from the indirect method (Collins et al., 2014), and possibly reduce analyst information processing costs and forecast errors. Orpurt and Zang (2009) find that when predicting future cash flows, reported cash flow statement line items prepared under the direct method are incrementally informative. Using the Australian sample, Farshadfar and Monem (2013) reach the same conclusion. Given that the majority of Australian firms use the direct method to prepare cash flow statements, the examination of the determinants of cash flow forecast accuracy in the Australian context provides additional insights into analysts' forecasting behaviours and their forecasting performance.

Analyst forecasting experience

Clement (1999) investigates whether the experience is a significant determinant of analyst forecast accuracy and finds that analysts improve their forecast accuracy as they gain experience. He argues that the positive association between analyst experience and forecast performance is attributable to an improvement in analysts' firm- and industry-specific knowledge and forecasting skills and access to firm-level private information. In addition, Pae and Yoon (2012) find that analysts' cash flow-specific forecasting experience better explains their cash flow forecast accuracy than earnings forecasting experience, suggesting that forecasting cash flows requires a different set of skills and expertise given the inherent variability between earnings and cash flows. I predict a positive association between the accuracy of analysts' CFFs and their cash flow-specific forecasting experience.

Analyst portfolio complexity

Analyst forecast accuracy is also influenced by the complexity of analyst portfolios. Clement (1999) measures analyst portfolio complexity using the number of firms and industries covered by an analyst. He assum es that analysts who follow more firms and industries devote less time to each firm. In addition, the analysts who have already understood the industry will put less searching efforts into forecasting, which will impact their forecast accuracy. Clement (1999) finds that the accuracy of analyst earnings forecasts is indeed negatively associated with the number of firms and industries covered. I predict a negative effect of analyst portfolio complexity on the accuracy of analysts' CFFs.

Brokerage resources

Larger brokerages may provide superior resources, such as better datasets and administrative support, and may also have better access to firm-level private information (Clement, 1999). Stickel (1995) shows that investors react more to the investment recommendations of analysts working for large brokerages relative to other analysts. He attributes this difference to the more advanced distribution networks of larger brokerage houses, which allow large firms to better disseminate their analysts' investment recommendations to the market. Clement (1999) and Pae and Yoon (2012) find that analysts from larger brokerages provide more accurate earnings forecasts and CFFs. I predict the accuracy of analysts' CFFs increases with the size of brokerage houses.

Analyst forecast horizon

The literature suggests that analyst forecast accuracy improves as the earnings announcement date approaches and as analysts are therefore able to incorporate new information into their forecasts (De Bondt & Thaler, 1990; Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012). Pae and Yoon (2012) also find evidence that the accuracy of cash flow forecasts is negatively associated with the forecast horizon. I predict that the accuracy of analysts' CFFs is negatively associated with forecast horizon.

Firm characteristics

Prior studies show that firm characteristics are associated with analyst forecast accuracy. One such characteristic, for example, is the number of analysts following a firm, which prior research finds to be positively associated with forecast accuracy (e.g. Das, Levine, & Sivaramakrishnan, 1998; Duru & Reeb, 2002; Lys & Soo, 1995). Lang and Lundholm (1996) find that forecast dispersion is negatively associated with analysts' earnings forecast accuracy, suggesting that the accuracy of analysts' forecasts decreases with earnings uncertainty. Duru and Reeb (2002) suggest that firm size has a mixed effect on analyst earnings forecast accuracy: the larger a firm, the more complex its operations are, which leads to higher earnings forecast errors. On the other hand, larger firms tend to disclose more information, which helps analysts make more accurate forecasts. I predict that the accuracy of analysts' CFFs is positively associated with the number of analysts following a firm and negatively associated with forecast dispersion, and that the effect of firm size on the accuracy of cash flow forecasting is mixed.

2.2.3 Usefulness of analysts' cash flow forecasts to market participants

Usefulness of analysts' cash flow forecasts in improving earnings forecast accuracy

Prior studies present mixed evidence attesting to the usefulness of CFFs to both investors and to analysts themselves. On the one hand, Call et al. (2009) find that analysts' earnings forecasts accompanied by CFFs are more accurate and show a better understanding of the implications of current period accruals and cash flows for future earnings than those issued without CFFs. Call et al. (2009) attribute their findings to analysts adopting a more structured and disciplined approach to forecast earnings because the issuance of CFFs requires analysts have a better understanding of a full set of financial statements and earnings components. Mohanram (2014) and Radhakrishnan and Wu (2014) find that investors assess the persistence of accruals more appropriately for firms where analysts issue both earnings forecasts and CFFs. Gordon et al. (2014) provide evidence of the provision of analysts' CFFs in reducing the extent of accrual anomaly in an international setting. These findings are consistent with cash flow predictions by analysts being useful in mitigating market inefficiency.

On the other hand, Givoly et al. (2009) argue that analysts' CFFs are of limited information content when analysts fail to incorporate expected changes in working capital and other accrual adjustments when forecasting cash flows. Bradshaw et al. (2001), Elgers, Lo, and Pfeiffer Jr (2003) and Ahmed, Nainar, and Zhang (2006) show that analysts do not fully understand the persistence and valuation implications of accruals. Bilinski (2014) finds that CFFs are of limited use to investors in assessing firm valuations after controlling for other analyst information.

In their recent study, Call et al. (2013) review 90 full-text analyst reports which include CFFs and find evidence that many analysts incorporate forecasts of working capital and other accruals into their CFFs, and even forecast a full set of financial statements (e.g. forecasted balance sheet, income statement and cash flow statement) which contain explicit forecasts of various accrual-based line items. Their findings suggest that when analysts issue CFFs in addition to earnings forecasts, they conduct a more thorough analysis of a firm's financial statements and achieve a better understanding of the firm's earnings components. In the Australian context, firms are mandated to present cash flow statements using the direct method. Direct method cash flow disclosures make it easier for users to construct forecasts of cash flows and more informative in predicting future cash flows and performance (Farshadfar & Monem, 2013; Orpurt & Zang, 2009). Given that forecasting cash flows requires analysts articulate a full set of financial statements, which facilitates their understanding of the firm' earnings process, and reported line items of the cash flow statement prepared by the direct method are incrementally informative, I predict that analysts' earnings forecast accuracy is improved with the presence of CFFs.

Usefulness of analysts' cash flow forecasts in understanding the persistence of earnings components

Hirshleifer and Teoh (2003) and Hewitt (2009) suggest that analysts' earnings forecasts are more accurate when analysts focus their forecast efforts on the individual disaggregated components of earnings rather than on aggregate information. Because the predictions of cash flows require analysts to articulate a full set of financial statements and pay more attention to individual earnings components, I expect analysts to better incorporate the implications of accrual persistence in their earnings predictions for firms where they also issue CFFs. Call et al. (2009) provide evidence that the provision of CFFs helps analysts efficiently process information and correct analysts' mispricing of accruals. In addition, Miao, Teoh, and Zhu (2016) find that when firms disclose both cash flow statements and balance sheets in earnings press releases, it enables investors and analysts to value accruals more efficiently compared to when they disclose only balance sheets. Their finding suggests that investors and analysts are likely to pay more attention to accruals because the cash flow statement disclosure makes accruals more salient and easier to process for investors and analysts with limited attention. Similarly, when analysts provide CFFs in addition to earnings forecasts, they implicitly also provide accrual forecasts. I predict that the resulting additional accrual information helps investors and analysts better understand the differing persistence of accruals and cash flows on future earnings.

2.3 Data and Research Design

2.3.1 The sample

Analyst forecast data is sourced from the I/B/E/S Summary and Detail History International Edition database, where I identify Australian firm observations with one-year-ahead earnings forecasts and CFFs over the sample period 1993–2015. Given that the Australian Accounting Standard Board (AASB) 1026, *Statement of Cash Flows*, applies to financial years ending on or after 30 June 1992, I begin the sample period from 1993 to obtain cash flow statement information using the direct method by Australian firms. Following prior studies (Clement, 1999; Clement & Tse, 2003, 2005; Pae & Yoon, 2012), I retain the last cash flow forecast which an analyst has issued no earlier than one year and no later than 30 days before the fiscal year-end.

Financial statement information for ASX-listed firms is obtained from the Morningstar (FinAnalysis) database. Stock price data is sourced from the Share Price and Price Relatives (SPPR) database and institutional holdings data are obtained from Thomson Reuters. Firms with (i) missing data for any of the variables used in empirical tests, (ii) negative book value of equity, or (iii) negative total assets are excluded from the sample. To mitigate the effect of outliers, all continuous variables are truncated at the top and bottom 1%. I obtain 40,675 analyst-firm-year observations.

2.3.2 Research design

Regression model for testing the determinants of analysts' issuance of cash flow forecasts

Following DeFond and Hung (2003), I use the following logit regression model to investigate the factors affecting analysts' decisions regarding whether to issue CFFs:

$$\begin{aligned} DCFF_{it} = {} & \beta_0 + \beta_1 MKRETURN_{it} + \beta_2 ABSACC_{it} + \beta_3 EVOL_{it} + \beta_4 CAPINTENSITY_{it} \\ & + \beta_5 Z\text{-}SCORE_{it} + \beta_6 SIZE_{it} + \beta_7 COVERAGE_{it} + \beta_8 INST_{it} + \beta_9 EXPG_{jt} \\ & + \beta_{10} NFIRM_{jt} + \beta_{11} BSIZE_{jt} + YEAR + INDUSTRY + \varepsilon_{ijt} \qquad (1) \end{aligned}$$

where the subscript *i* refers to firm *i*, the subscript *t* refers to year *t*, and the subscript *j* refers to analyst *j*. The dependent variable, $DCFF_{jt}$, is an indicator variable equal to 1 if analysts issue both earnings and cash flows forecasts for firm *i* and 0 if analysts issue earnings forecasts only for firm *i* in year *t*. The main variables of interest, the magnitude of accruals (*ABSACC*), earnings volatility (*EVOL*), firm size (*SIZE*), institutional holdings (*INST*), the number of analysts following (*COVERAGE*) and analyst workload (*NFIRM*) are predicted to have mixed effects on analysts' decisions regarding whether to issue CFFs. Market returns *(MKRETURN*), capital intensity (*CAPINTENSITY*), analysts' general earnings forecasting experience (*EXPG*) and brokerage resources (*BSIZE*) are predicted to increase the likelihood of the provision of CFFs. Financial health (*Z-SCORE*) is predicted to decrease the likelihood of analysts to issue CFFs. Variable definitions are provided in Appendix 1. The year (*YEAR*) and industry (*INDUSTRY*) dummies are included in the model to control for cross-sectional dependence, and robust standard errors clustered by analyst are used to control for time-series dependence in earnings forecast accuracy (Petersen, 2009).

It is noted that the high percentage of analysts providing CFFs with earnings forecasts makes the Australian setting distinct from the United States. In the U.S., on average, half of earnings forecasts are issued with CFFs (Call et al., 2009, 2013; Radhakrishnan & Wu, 2014), while in Australia over 95% of earnings forecasts issued by analysts are accompanied by CFFs[6]. I employ two alternative model specifications to corroborate the inferences which are drawn from equation (1). Specifically, I estimate the following logit regressions to examine the likelihood that analysts will initiate and terminate the issuance of CFFs, and the potential impact which the demand-side and supply-side factors may have on analysts' decisions regarding whether to initiate and drop the issuance of CFFs.

$$DINITIATE_{ij} = \beta_0 + \beta_1 MKRETURN_{it} + \beta_2 ABSACC_{it} + \beta_3 EVOL_{it} + \beta_4 CAPINTENSITY_{it} + \beta_5 Z\text{-}SCORE_{it} + \beta_6 SIZE_{it} + \beta_7 COVERAGE_{it} + \beta_8 INST_{it} + \beta_9 EXPG_{ijt} + \beta_{10} NFIRM_{ijt} + \beta_{11} BSIZE_{ijt} + INDUSTRY + YEAR + \varepsilon_{ijt} \quad (2)$$

$$DTERMINATE_{ij} = \beta_0 + \beta_1 MKRETURN_{it} + \beta_2 ABSACC_{it} + \beta_3 EVOL_{it} + \beta_4 CAPINTENSITY_{it} + \beta_5 Z\text{-}SCORE_{it} + \beta_6 SIZE_{it} + \beta_7 COVERAGE_{it} + \beta_8 INST_{it} + \beta_9 EXPG_{ijt} + \beta_{10} NFIRM_{ijt} + \beta_{11} BSIZE_{ijt} + INDUSTRY + YEAR + \varepsilon_{ijt} \quad (3)$$

where $DINITIATE_{ij}$ is an indicator variable equal to 1 in the first year in which analyst *j* issues a cash flow forecast for firm *i* and equal to 0 in the year immediately before analyst *j*'s first cash flow forecast for firm *i*. $DTERMINATE_{ij}$ is an indicator variable equal to 1 in the first year after analyst *j*'s last cash flow forecast for firm *i* and equal to 0 in the year of analyst *j*'s last cash flow forecast for firm *i*. All other variables are defined in Appendix 1. I use analyst-firm observations with annual CFFs for the ASX-listed firms obtained from the

[6] The percentage of 95% stated here is the percentage of earnings forecasts issued by analysts that are accompanied by CFFs. It is measured at analyst-firm-year level and is shown in Panel C of Table 2.1. However, the mean of *DCFF* (90.4%) in Table 2.2 indicates the percentage of firm years with both analyst earnings forecasts and CFFs, which is measured at firm-year level and is consistent with the figure shown in Panel B of Table 2.1.

I/B/E/S Detail database in the period 1993–2015 to construct the initiation and termination subsamples.[7]

Regression model for testing the determinants of analysts' cash flow forecast accuracy

Most prior studies which examine CFFs select their samples based on the forecast data available in commercial databases (i.e. I/B/E/S). This sample selection procedure potentially introduces the sample selection bias as it overlooks the fact that analysts do not make decisions regarding whether to provide CFFs randomly. For example, analysts tend to cover firms with large market capitalisation and high institutional ownership. If the sample is not selected randomly from the whole population, the self-selection problem may occur and can introduce bias into the inferences generated from the non-randomly selected sample (Heckman, 1979). To control for self-selection bias, I use the Heckman (1979) two-stage model to test the determinants of analysts' cash flow forecast accuracy. First, I employ the following probit regression model to estimate the likelihood that analysts provide coverage for a firm[8].

$$Select_{it} = \gamma_0 + \gamma_1 \sum_k^1 DETERMINANTS_{it} + \varepsilon_{it} \qquad (4)$$

where $Select_{it}$ is an indicator variable equal to one if analysts issue earnings forecasts for firm *i* in year *t* and zero otherwise. I include a set of firm and industry level variables which

[7] If an analyst changes employers, but continues to provide CFFs for a firm, I only count his first CFF with his previous employer as initiation.

[8] Similar results are found when using an alternative specification for Model 4 which includes both industry and year fixed effects.

prior studies find to be the determinants of analyst coverage (Bhushan, 1989; Cheng & Subramanyam, 2008; O'Brien & Bhushan, 1990): institutional holdings (*INST*), earnings volatility (*EVOL*), the magnitude of accruals (*ABSACC*), intangible intensity (*INTANGIBLE*), regulated industry (*REGIND*), firm size (*SIZE*), market adjusted return (*MKRETURN*), capital intensity (*CAPINTENSITY*), the number of shares outstanding (*SHARE*) and return volatility (*RETVAR*). Variable definitions are provided in Appendix 1. I estimate the Inverse Mills Ratio (*Lambda*) by using the normal density and cumulative distribution functions of the predicted likelihood from this first-stage probit model. I include *Lambda* in the following second-stage regression model to mitigate problems of potential self-selection.

$$ACFF_{ijt} = \beta_0 + \beta_1 EXPF_{ijt} + \beta_2 NFIRM_{jt} + \beta_3 NIND_{jt} + \beta_4 BSIZE_{jt} + \beta_5 HORZ_{ijt} + \beta_6 DISP_{it} + \beta_7 COVERAGE_{it} + \beta_8 SIZE_{it} + Lambda + \varepsilon_{ijt} \quad (5)$$

where the dependent variable, $ACFF_{ijt}$, is the cash flow forecast accuracy of analyst *j* for firm *i* in year *t*, measured by the negative of the absolute value of the difference between the actual and forecasted cash flows per share, consistent with Pae and Yoon (2012). The main variable of interest, firm-specific cash flow forecasting experience (*EXPF*), brokerage resources (*BSIZE*) and the number of analysts following (*COVERAGE*) are predicted to be positively associated with cash flow forecast accuracy. The number of firms (*NFIRM*) and industries (*NIND*) followed by analysts, forecast horizon (*HORZ*) and dispersion (*DISP*) are expected to negatively affect cash flow forecast accuracy. Finally, the expected effect of firm size (*SIZE*) on cash flow forecast accuracy is unclear. All variable definitions are provided in Appendix 1.

Superiority of analysts' cash flow forecasts over forecasts from time-series models

I compare the accuracy of analysts' CFFs with those produced by time-series models to examine whether analysts' CFFs serve as a better surrogate for market expectations of future cash flows. I employ the following time-series models to predict future cash flows:

The random walk model, $CFO_{i,t} = CFO_{i,t-1}$ (6)

where cash flows from operations (*CFO*) for firm *i* in year *t* is predicted to be the same as *CFO* in the previous year;

AR (1) model, $CFO_{i,t} = a + b \times CFO_{i,t-1} + e_{i,}$ (7)

AR (2) model, $CFO_{i,t} = a + b_1 \times CFO_{i,t-1} + b_2 \times CFO_{i,t-2} + e_{i,t}$ (8)

The extended AR (1) model as in Barth *et al.* (2001),

$$CFO_{i,t} = a + b_1 \times CFO_{i,t-1} + b_2 \times \Delta AR_{i,t-1} + b_3 \times \Delta INV_{i,t-1} + b_4 \times \Delta AP_{i,t-1} + b_5 \times DEP_{i,t-1} + b_6 \times Other_{i,t-1} + e_{i,t} \quad (9)$$

Following Barth, Cram, and Nelson (2001)'s approach, I model CFO in year *t* as a function of CFO in the previous year, changes in working capital items including accounts receivable (*AR*), inventory (*INV*) and accounts payable (*AP*), depreciation and amortisation expense (*DEP*) and other accruals (*Other*) in equation (9). The accuracy of CFFs is measured by the unsigned forecast error, defined as *Unsigned Forecast Error* = |(*Reported* CFO_t – *Forecasted* CFO_t) / *Reported* CFO_t| for the forecasts generated from time-series models, or the absolute value of the difference between actual and forecasted cash flows per share scaled by actual cash flows per share for analysts' cash flow forecasts. To eliminate the effect of outliers, I remove the unsigned forecast errors higher than or equal to 100%.

Regression model for testing the usefulness of analysts' cash flow forecasts in improving earnings forecast accuracy

Consistent with Call et al. (2009), I estimate the following regression to examine whether analysts issue more accurate earnings forecasts when they also issue CFFs.

$$
\begin{aligned}
MAFE_{ijt} = {} & \beta_{ijt} + \beta_1 DCFF_{it} + \beta_2 DINI_{ijt} + \beta_3 DTER_{ijt} + \beta_4 MFEXP_{ijt} + \beta_5 MGEXP_{jt} \\
& + \beta_6 DTOP10_{jt} + \beta_7 MNSIC_{jt} + \beta_8 EVOL_{it} + \beta_9 MKRETURN_{it} + \beta_{10} RETVAR_{it} \\
& + YEAR + INDUSTRY + \varepsilon_{ijt} \qquad (10)
\end{aligned}
$$

where the dependent variable, $MAFE_{ijt}$, is the mean-adjusted absolute earnings forecast error, measured as $MAFE_{ijt} = -1 \times (FE_{ijt} - \overline{FE}_{jt}) / \overline{FE}_{jt}$, where FE_{ijt} is analyst j's absolute earnings forecast errors for firm i in year t, and $\overline{FE}_{jt}$ is the mean absolute earnings forecast error across all analysts following firm i in year t. The absolute earnings forecast error is defined as the absolute value of the difference between actual and forecasted earnings per share.[9] More positive (negative) values of $MAFE_{ijt}$ indicate that an analyst's earnings forecast is more (less) accurate than the mean earnings forecast of all analysts following the firm. The variables of interest, *DCFF* and *DINI*, the indicator variables for the issuance and

[9] Using mean-adjusted absolute forecast errors can control for variations in forecasting difficulty across firms and across years and enables us to compare analysts' earnings forecasts across firms and across time periods (Call et al., 2009; Chen & Matsumoto, 2006; Clement, 1999; Jacob, Lys, & Neale, 1999).

initiation of CFFs, are predicted to be positive, and *DTER*, the indicator variable for the termination of CFFs, is predicted to be negative.

I include several analyst-characteristic variables which prior studies find to be associated with analyst earnings forecast accuracy and the issuance of CFFs in equation (10): firm-specific earnings forecasting experience (*MFEXP*), general earnings forecasting experience (*MGEXP*), brokerage resources (*DTOP10*) and the number of industries followed by analysts (*MNSIC*) (Clement, 1999; Ertimur & Stubben, 2005; Jacob et al., 1999). Those analyst characteristic variables are mean-adjusted to conform to the specification of the mean-adjusted dependent variable (Call et al., 2009). I also include earnings volatility (*EVOL*), market adjusted return (*MKRETURN*) and return volatility (*RETVAR*) in equation (10) to control for firm-specific factors which may be associated with analyst earnings forecast accuracy and the issuance of CFFs. Variable definitions are provided in Appendix 1. I include the year (*YEAR*) and industry (*INDUSTRY*) dummies to control for cross-sectional dependence and calculate analyst-clustered standard errors to control for time-series dependence in earnings forecast accuracy (Petersen, 2009).

Regression model for testing the usefulness of analysts' cash flow forecasts in understanding the persistence of earnings components

Finally, I employ the following regression models to investigate whether analysts who issue both earnings forecasts and CFFs have a better understanding of the implications of current accruals and cash flow components of earnings for future earnings than those who only issue earnings forecasts.

$$FEPS_{ijt} = \lambda_0 + \lambda_1 INDICATOR_{ijt} + \lambda_2 ACCPS_{jt-1} + \lambda_3 ACCPS_{jt-1} \times INDICATOR_{ijt} + \lambda_4 CFOPS_{jt-1} + \lambda_5 CFOPS_{jt-1} \times INDICATOR_{ijt} + \mu_{jt} \quad (11)$$

$$FERR_{ijt} = \gamma_0 + \gamma_1 INDICATOR_{ijt} + \gamma_2 ACCPS_{jt-1} + \gamma_3 ACCPS_{jt-1} \times INDICATOR_{ijt} + \gamma_4 CFOPS_{jt-1} + \gamma_5 CFOPS_{jt-1} \times INDICATOR_{ijt} + v_{jt} \quad (12)$$

where *INDICATOR* refers *DCFF* or *DINITIATE*, respectively. These variables are defined in Appendix 1. *FEPS*, *ACCPS* and *CFOPS* are forecasted earnings per share, total accruals per share and operating cash flow per share, respectively, all scaled by beginning-of-period total assets. *FERR* is analyst-forecasted error calculated as the difference between earnings per share scaled by beginning-of-period total assets and *FEPS*. I expect that the coefficients on the interaction terms, *ACCPS×INDICATOR* and *CFOPS×INDICATOR*, are positive in equation (11), consistent with the prediction that analysts better understand the differential persistence of current accruals and cash flow components of earnings for future earnings by reducing the underweighting of the persistence of both accruals and cash flows when they issue both earnings forecasts and CFFs. I also predict that the coefficients on the interaction terms *ACCPS×INDICATOR* and *CFOPS×INDICATOR* in equation (12) are negative, consistent with analysts underestimating the persistence of current accruals and cash flows components of earnings to a lesser extent when their earnings forecasts are accompanied by CFFs compared to those issued without CFFs.

2.3.3 Descriptive statistics

Table 2.1 reports descriptive statistics on the availability of analysts' cash flow forecasts in Australia through I/B/E/S. Panel A and B of Table 2.1 present the number and proportion of firms and firm-years for which analysts issue one-year-ahead earnings forecasts with and without CFFs in the I/B/E/S database. As shown in Panel A, a high percentage (92.39%) of Australian firms are followed by analysts who issue earnings forecasts along with CFFs. The proportion of firms for which analysts provide both earnings forecasts and CFFs increases from 89.51% in the pre-IFRS adoption period (1993–2004) to 94.02% in the post-IFRS adoption period (2005–2015). Panel B reveals a similar trend among firm-year observations.

Panel C of Table 2.1 reports the number and proportion of analysts' earnings forecasts issued with and issued without CFFs. 95.90% of analysts' earnings forecasts are accompanied by CFFs. The proportion of analysts' earnings forecasts issued with CFFs increases from 92.53% in the pre-IFRS adoption period to 98.18% in the post-IFRS adoption period. It is notable that the provision of analysts' CFFs is more pervasive in Australia than in the U.S., making the understanding of the economic consequences of analysts' CFFs in Australia more relevant.

[Insert Table 2.1 here]

Table 2.2 presents descriptive statistics for the variables used in the empirical tests which examine analysts' CFFs in Australia. Panel A reports descriptive statistics for the firm-level variables. Panel B of Table 2.2 presents descriptive statistics for analyst and forecast characteristics. On average, analysts in the sample have about five years of earnings forecasting experience (*EXPG*) and one year of firm-specific cash flow forecasting experience (*EXPF*). Each analyst provides forecasts for 12 firms (*NFIRM*) in three industries (*NIND*) per year. Brokerages houses in the sample employ an average of 28 analysts. The last cash flow forecast used in the tests is issued 120 days (*HORZ*) before the fiscal year-end date.

[Insert Table 2.2 here]

2.4 Empirical Results

2.4.1 Empirical results for the determinants of analysts' issuance of cash flow forecasts

Table 2.3 presents the results of three logit regressions which examine the demand-side and supply-side factors in jointly determining the issuance, initiation and termination, respectively, of CFFs by analysts. In column (1), the coefficients on *ABSACC*, *Z-SCORE, SIZE,* and *INST* show the predicted sign from the demand-side perspective and are statistically significant for the *DCFF* regression. A significantly positive coefficient on *ABSACC* suggests that, in response to investor demand for CFFs for firms with relatively large accruals, analysts are incentivised to provide CFFs despite the information processing costs and challenges of supplying such forecasts to firms with a large magnitude of accruals. The significantly negative coefficient on *Z-SCORE* indicates that analysts are more likely to issue CFFs to firms with poorer financial health, consistent with prior literature and the prediction in this study based on the demand-side explanation. A significantly negative coefficient on *INST* indicates that the low likelihood of default risk reduces investor demand for CFFs, which disinclines analysts to provide them. The significantly positive coefficient on *SIZE* also indicates that investor demand is the driving force behind the increasing trend of the issuance of CFFs in the Australian market. Despite the rich information environment in which large firms operate, investors still demand CFFs to complement their information sources and analysts, in turn, issue CFFs to meet that demand (DeFond & Hung, 2007; Hail, 2007). Overall, analysts tend to issue CFFs to firms with large accruals and rich information environments and are disinclined to provide CFFs to firms with low default risk given reduced investor demand.

[Insert Table 2.3 here]

Several supply-side factors, *MKRETURN*, *EVOL*, *COVERAGE*, *NFIRM* and *BSIZE*, also influence analysts' decisions regarding whether to issue CFFs in addition to the aforementioned demand-side factors. A significantly positive coefficient on *MKRETURN* is consistent with the supply-side argument that analysts are likely to provide forecasts for stocks about which they have favourable views in order to generate trading and investment banking activities for their brokerage houses. A significantly negative coefficient on *EVOL* is consistent with the supply-side explanation that higher earnings uncertainty is likely to increase analyst information collection costs and the difficulties in issuing quality CFFs and thus disincentivise analysts to provide CFFs. The coefficient on *BSIZE* is positive and statistically significant, suggesting that the large resource pool at the brokerage house positively affects analysts' propensity to issue CFFs. A significantly positive coefficient on

NFIRM shows that analysts are willing to provide CFFs when their coverage is growing, implying that analysts may be able to achieve economies of scale and reduce information processing costs to prepare CFFs for a group of firms, possibly because most Australian firms present their cash flow statements using the direct method and direct method cash flow disclosures make it easier for users to construct forecasts of cash flows (Farshadfar & Monem, 2013; Orpurt & Zang, 2009).

In columns (2) and (3), the coefficient on *CAPINTENSITY* in the *DINITIATE* regression and the coefficient on *INST* in the *DTERMINATE* regression show the predicted sign from the demand-side perspective and are statistically significant, confirming the findings from the main specification. For the *DINITIATE* regression, analysts are motivated to initiate CFFs given that investors consider CFFs useful for firms with high levels of capital expenditure and rich information environments. For the *DTERMINATE* regression, the termination of the provision of CFFs by analysts is also driven by demand. In response to reduced investor demand of CFFs for firms with a low likelihood of default risk and less investor attention, analysts cease to provide CFFs. The coefficients on *SIZE* for the *DINITIATE* and *DTERMINATE* regressions indicate that analysts initiate CFFs for smaller firms and terminate the provision of CFFs for larger firms, consistent with the reduced investor demand for cash flow information for larger firms if other information sources are sufficient enough for investors to interpret firms' earnings information (Bilinski, 2014). Finally, the significantly positive and negative coefficients on *Z-SCORE* for the *DINITIATE* and *DTERMINATE* regressions, respectively, are contrary to prior literature and contrary also to the prediction in this study, based on the demand-side explanation, that analysts are more likely to issue CFFs to firms with poorer financial health. I provide further analysis on *Z-SCORE* in Section 2.5. The results for the *DINITIATE* and *DTERMINATE* regressions in columns (2) and (3) also confirm that, in addition to the demand-side factors, supply-side factors such as *EXPG*, *NFIRM* and *BSIZE* also influence analysts' decisions regarding whether to initiate and terminate CFFs.

Overall, the evidence presented in Table 2.3 shows that analysts' decisions regarding whether to issue CFFs are jointly determined by both demand-side and supply-side factors. Given the unique institutional structures in the Australian market, including the dominance of mining firms on the ASX and the prevalence of using the direct method to prepare cash flow statements by ASX-listed firms, analysts respond to investor demand by issuing CFFs to firms with a large magnitude of accruals and rich information environments, and when the large resource pool at their brokerage houses is available. Analysts' prosperity to issue CFFs also increases with their workload, possibly because most firms present their cash flow statements using the direct method in Australia and the direct method cash flow disclosures make it easier for users to forecast cash flows. On the other hand, analysts are disinclined to provide CFFs to firms with low default risk given reduced investor demand.

2.4.2 Empirical results for the determinants of analysts' cash flow forecast accuracy

Table 2.4 provides the results of estimating equation (5) that examines the determinants of the accuracy of analysts' cash flow forecasts. The significant coefficient on

Lambda suggests that the unobservable factors affecting analysts' decisions regarding whether to issue CFFs are related to the accuracy of CFFs, indicating the importance of controlling for self-selection in equation (5).[10] Consistent with the predictions, the coefficients on *EXPF* and *BSIZE* are positive and statistically significant, indicating that the accuracy of cash flow forecasts increases with analysts' cash flow-specific forecasting experience and the size of brokerage houses. The coefficients on *NFIRM*, *HORZ* and *DISP* are significantly negative, suggesting that analysts who follow more firms have less accurate cash flow forecasts, and that the accuracy of their cash flow forecasting also decreases with forecast horizon and dispersion. In addition, the significantly positive coefficient on *NIND* and the significantly negative coefficient on *SIZE* suggest that analysts following more industries and smaller firms have more accurate cash flow forecasts. The results show that several analyst, forecast and firm characteristics jointly determine analysts' cash flow forecast accuracy, which is largely in line with prior studies.

[Insert Table 2.4 here]

Given that the majority of Australian firms use the direct method to prepare cash flow statements and direct method cash flow disclosures are informative in predicting future cash flows and performance, I perform several additional tests in Section 2.5 to further explore

[10] The coefficients on all the variables included in the first-stage probit model are statistically significant (untabulated), consistent with prior literature regarding the effect of these firm and industry characteristics on analysts' decisions regarding whether to issue CFFs (e.g. Bhushan, 1989; Cheng & Subramanyam, 2008; O'Brien & Bhushan, 1990).

whether the institutional structure of the Australian market influences the determinants of the accuracy of analysts' cash flow forecasts.

2.4.3 Empirical results for the accuracy of analysts' cash flow forecasts in comparison with cash flow forecasts derived from time-series models

Table 2.5 shows the accuracy of analysts' CFFs as compared with the accuracy of the forecasts produced by time-series models. The results indicate that analysts' CFFs are substantially more accurate than the forecasts generated from alternative time-series models and that the differences are statistically significant at the 1% level, suggesting that analysts outperform mechanical time-series models regarding the predictive ability of future cash flows.

[Insert Table 2.5 here]

2.4.4 Empirical results for the usefulness of analysts' cash flow forecasts in improving earnings forecast accuracy

Table 2.6 reports the results of the regression examining the issuance of CFFs in improving the accuracy of analysts' earnings forecasts. The coefficients on *DCFF* and *DINI* are significantly positive, while the coefficient on *DTER* is significant and negative. The results indicate that analysts' earnings forecasts accompanied by CFFs are more accurate than those issued without CFFs. Furthermore, analysts' earnings forecast accuracy is improved after analysts initiate CFFs but decreased after analysts stop issuing CFFs. As for control variables, significantly positive coefficients on *MFEXP* and *MGEXP* are consistent with the accuracy of analysts' forecasts, increasing with their experience (Clement, 1999). Overall, the finding is supportive of the prediction and suggests that the superiority of analysts' earnings forecast accuracy can be attributed to analysts' better understanding of a full set of financial statements and earnings components when they also issue CFFs.

[Insert Table 2.6 here]

2.4.5 Empirical results for the usefulness of analysts' cash flow forecasts in understanding the persistence of earnings components

The results of the regressions examining whether analysts achieve a better understanding of the persistence of earnings components in the presence of CFFs are reported in Table 2.7. Consistent with the predictions, the coefficients on the interaction terms, *CFOPS*×*DCFF* in column (1) and *ACCPS*×*DINI* and *CFOPS*×*DINI* in column (2), are significantly positive for the *FEPS* regressions, suggesting that analysts recognize the differential persistence of current accruals and cash flow components of earnings for future earnings and underweight the persistence of both accruals and cash flows less when they issue both earnings forecasts and CFFs. Furthermore, the coefficients on the interaction terms *ACCPS*×*DCFF* and *CFOPS*×*DCFF* in column (3) and *ACCPS*×*DINI* and *CFOPS*×*DINI* in column (4) are significantly negative for the *FERR* regressions, consistent with analysts underestimating the persistence of current accruals and cash flows components of earnings to a lesser extent when their earnings forecasts are accompanied by CFFs than when they are issued without CFFs.

[Insert Table 2.7 here]

2.5 Additional Tests

2.5.1 Using mining and non-mining firm subsamples

Given that firms in the mining industry have different characteristics compared with those in other industries and that the mining firms dominate the listings on the ASX, I partition the full sample into mining and non-mining firm subsamples and re-run equation (1) to investigate differential factors influencing analysts' provision of CFFs for mining and non-mining firms. The results are presented in Table 2.8, columns (1) and (2). I find that analysts' propensity to issue CFFs increases for both mining and non-mining firms with large analyst coverage given enhanced investor demand and increases when large brokerage resources and higher workload are the supply factors. In addition, analysts are likely to provide CFFs to mining firms with poor financial health and high default risk given that investors have particular concerns about mining firms' distress risk. In contrast, analysts' provision for CFFs increases with non-mining firms with sound financial health. The results suggest that the institutional structure of the market affects investor demand and in turn influences analyst incentives to issue CFFs. I also re-estimate equation (5) using mining and non-mining firm subsamples to examine differential factors affecting the accuracy of analysts' CFFs. The results are reported in columns (1) and (2) of Table 9 and are generally consistent with the finding from the overall sample.

[Insert Table 2.8 here]

2.5.2 Using pre- and post-IFRS adoption period subsamples

I partition the full sample into pre- and post-IFRS adoption period subsamples and re-run equations (1) and (5) to investigate whether the adoption of IFRS affects the results for the determinants of the issuance and accuracy of analysts' CFFs. The adoption of IFRS has the potential to change the association between current accounting earnings and future cash flows (Atwood et al., 2011), as well as analysts' abilities to predict future performance (Byard et al., 2011) and the information environment (Chalmers et al., 2012; Horton et al., 2013), both of which could alter the findings based on the overall sample period. The regression results for the determinants of the provision of CFFs are reported in columns (3) and (4) of Table 8. The regression results for the determinants of the accuracy of CFFs are reported in columns (3) and (4) of Table 2.9. The results show that analysts' propensity to issue CFFs to firms with a large magnitude of accruals, large size and low institutional holdings is more pronounced in the post-IFRS period. In addition, during the post-IFRS period, analysts following more industries and working for larger brokerage houses tend to have more accurate cash flow forecasts. The adoption of IFRS in Australia indeed affects analysts' cash flow forecasting behaviours and their forecasting performance.

[Insert Table 2.9 here]

2.5.3 Excluding highly correlated independent variables

As *NFIRM* is highly correlated with *NIND* (untabulated), the results from testing the determinants of the accuracy of analysts' cash flow forecasts may be affected by the potential multicollinearity problem. To address this concern, I re-estimate equation (5) by excluding either of these variables. The results are similar to those reported in Table 2.4.

2.5.4 Dropping the utility and financial industries

In Australia, firms in the utility and financial industries are subject to different regulatory oversight. To assess whether the inclusion of these firms has influences on the results, I re-run the analyses examining the determinants of the issuance and accuracy of analysts' CFFs after excluding the utility and financial firms. Results are robust to the exclusion of these firms.

2.5.5 Using scaled variables to test the determinants of analyst cash flow forecast accuracy

Following Clement and Tse (2003, 2005) and Pae and Yoon (2012), I scale all the variables in equation (5) to range from 0 to 1 for each firm-year pair to control for firm and year effects as well as other analyst and forecast characteristics.[11] The results using the scaled variables are similar to those reported previously.

---

[11] $ACFF_{ijt} = \frac{max\ (AFE_{jt}) - AFE_{ijt}}{range\ (AFE_{jt})}$ where *AFE* is the absolute value of difference between actual and forecasted cash flows per share. $Characteristic_{ijt} = \frac{Raw\ Characteristic_{ijt} - min\ (Raw\ Characteristic_{jt})}{range\ (Raw\ Characteristic_{jt})}$ where *Raw Characteristics* is each independent variable in equation (5).

2.6 Conclusion

Given that Australia has experienced a considerable increase in the provision of analysts' CFFs in the past two decades and has several unique institutional structures, including the fact that mining firms dominate the listings on the ASX and the prevalence of using the direct method to prepare cash flow statements by listed firms, this study examines the factors affecting the issuance, accuracy and usefulness of analysts' CFFs in Australia for the period of 1993–2015.

I find that analysts' decisions regarding whether to provide CFFs are jointly determined by both investor demand and analyst incentives and capabilities. Analysts respond to investor demand by issuing CFFs to firms with a large magnitude of accruals and rich information environments and when the large resource pool at their brokerage houses is available. Analysts' propensity to issue CFFs also increases with their workload, possibly because, in Australia, most firms present their cash flow statements using the direct method and direct method cash flow disclosures can reduce analyst information processing costs and forecast errors. On the other hand, analysts are disinclined to provide CFFs to firms with low default risk, given reduced investor demand. Consistent with prior research, the accuracy of analysts' CFFs is positively associated with analysts' cash flow-specific forecasting experience, the number of industries analysts follow, the size of brokerage houses. The accuracy of analysts' CFFs is also, on the other hand, negatively associated with the number of firms analysts follow, forecast horizon and dispersion. In additional analyses, I find that the determinants of the issuance and accuracy of analysts' CFFs differ for mining and non-mining firms and pre- and post-IFRS adoption periods, suggesting that the economic importance of the mining industry and adoption of IFRS in the Australian market indeed affects analysts' cash flow forecasting behaviours and performance.

Forecasting cash flows requires analysts to articulate a full set of financial statements, facilitating analysts' understanding of the firm's earnings process. The literature also suggests that the reported line items of cash flow statements prepared under the direct method employed by most Australian firms is incrementally informative (Farshadfar & Monem, 2013; Orpurt & Zang, 2009). Consistent with this view, I predict and find that analysts' CFFs are significantly more accurate than forecasts produced by time-series models and their earnings forecast accuracy is improved with the presence of CFFs.

The results of this study have important implications for investors, analysts, academics and accounting standard setters. First, the results are of great interest to investors who consider using analysts' CFFs when making investment decisions in the Australian market. The results help them make informed decisions and assess the capability of financial analysts and the usefulness of CFFs. Analysts also benefit from knowing the quality of their research output. Second, given the ongoing debate on the merits of the presentation of cash flow statements using the direct method, the results inform the Australian Accounting Standard Board (one of few accounting standard setters around the world that previously required and now encourages cash flow statements to be presented using the direct method) about the informativeness of the cash flow statements prepared by the direct method. Finally, the finding of the superiority of analysts' CFFs over the forecasts produced by time-series models and the analysts' improved ability to predict future earnings arising from the provision of CFFs should be of interest to both academics and market participants who are interested in evaluating analysts' CFFs in Australia.

Appendix 1: Variable Measurement

Variable	Definition
Panel A: Variables used in the regression models testing the determinants of analysts' issuance of cash flow forecasts	
$DCFF_{it}$	Indicator variable equal to one if analysts issue both earnings and cash flows forecasts for firm *i*, and zero if analysts issue earnings forecasts only for firm *i* in year *t*.
$DINITIATE_{ij}$	Indicator variable equal to one in the first year in which analyst *j* issues a cash flow forecast for firm *i*, and equal to zero in the year immediately before analyst *j*'s first cash flow forecast for firm *i*.
$DTERMINATE_{ij}$	Indicator variable equal to one in the first year after analyst *j*'s last cash flow forecast for firm *i*, and equal to zero in the year of analyst *j*'s last cash flow forecast for firm *i*.
$MKRETURN_{it}$	Market adjusted return, the continuously compounded return on the firm *i*'s share over trading days –294 to –45, minus the value-weighted market return over the same period (×100). Day 0 is the fiscal year-end date.
$ABSACC_{it}$	The absolute value of the difference between net income before extraordinary items and operating cash flows is deflated by total assets at the end of year *t*.
$EVOL_{it}$	The standard deviation of income before extraordinary items scaled by total assets over a five-year period ending in year *t*.
$CAPINTENSITY_{it}$	Fixed assets divided by sales revenue at the end of year *t*.
$Z\text{-}SCORE_{it}$	Altman's Z-score, measured in year *t*, equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets).
$SIZE_{it}$	The natural logarithm of the market value of equity at the end of year *t*.
$COVERAGE_{it}$	The number of analysts issuing earnings forecasts for a firm in year *t*.
$INST_{it}$	The percentage of institutional shareholdings at the end of year *t*.
$EXPG_{jt}$	Analyst earnings forecasting experience of analyst *j* as of year *t*, measured by the number of years analyst *j* has issued earnings forecasts for any firm.
$NFIRM_{jt}$	The number of firms analyst *j* follows in year *t*.
$BSIZE_{jt}$	The size of the brokerage house employing analyst *j* in year *t*,

	measured by the number of analysts employed by the brokerage house.
Panel B: Variables used in the first-stage probit regression model testing the accuracy of analysts' cash flow forecasts	
$SELECT_{it}$	Indicator variable equal to one for firms with earnings forecasts from I/B/E/S, and zero otherwise.
$INST_{it}$	Defined in Panel A.
$EVOL_{it}$	Defined in Panel A.
$ABSACC_{it}$	Defined in Panel A.
$INTANGIBLE_{it}$	Sum of research and development expense and advertising expense divided by total assets at the end of year *t*.
$REGIND_{it}$	Indicator variable equal to one if firm *i* is within a regulated industry, and zero otherwise.
$SIZE_{it}$	Defined in Panel A.
$MKRETURN_{it}$	Defined in Panel A.
$SHARE_{it}$	The natural logarithm of the total number of shares outstanding at the end of year *t*.
$RETVAR_{it}$	The standard deviation of monthly returns over year *t*.
Panel C: Variables used in the second-stage regression model testing the accuracy of analysts' cash flow forecasts	
$ACFF_{ijt}$	Cash flow forecast accuracy of analyst *j* for firm *i* in year *t*, measured by the negative of the absolute value of the difference between actual and forecasted cash flows per share.
$EXPF_{ijt}$	Firm-specific cash flow forecasting experience of analyst *j* as of year *t*, measured by the number of years analyst *j* has issued cash flow forecasts for firm *i*.
$NFIRM_{jt}$	Defined in Panel A.
$NIND_{jt}$	The number of industries analyst *j* follows in year *t*, based on I/B/E/S SIC codes.
$BSIZE_{jt}$	Defined in Panel A.
$HORZ_{ijt}$	The number of days from the forecast date to the fiscal year-end date.
$DISP_{it}$	The standard deviation of individual analyst cash flow forecasts for firm *i* in year *t*.
$COVERAGE_{it}$	Defined in Panel A.
$SIZE_{it}$	Defined in Panel A.
Panel D: Variables used in the regression models testing the usefulness of analysts' cash flow forecasts	

$MAFE_{ijt}$	Mean-adjusted absolute earnings forecast error, measured as $MAFE_{ijt} = -1 \times (FE_{ijt} - \overline{FE}_{jt}) / \overline{FE}_{jt}$, where FE_{ijt} is analyst *j*'s absolute earnings forecast errors for firm *i* in year *t*, and $\overline{FE}_{jt}$ is the mean absolute earnings forecast error across all analysts following firm *i* in year *t*. The absolute earnings forecast error is the absolute value of the difference between the actual and forecasted earnings per share.
$DCFF_{it}$	Defined in Panel A.
$DINI_{ijt}$	Indicator variable equal to one in the first year in which analyst *j* issues a cash flow forecast for firm *i*, and zero otherwise.
$DTER_{ijt}$	Indicator variable equal to one in the first year after analyst *j*'s last cash flow forecast for firm *i*, and zero otherwise.
$MFEXP_{ijt}$	Mean-adjusted number of years for which analyst *j* has issued earnings forecasts for firm *i*, prior to year *t*.
$MGEXP_{jt}$	Mean-adjusted number of years for which analyst *j* has issued earnings forecasts for any firm, prior to year *t*.
$DTOP10_{jt}$	Indicator variable equal to one if analyst *j* is employed by a brokerage firm in the top size decile during year *t*, and zero otherwise. Size deciles are based on the number of unique analysts employed in year *t*.
$MNSIC_{jt}$	Mean-adjusted number of industries analyst *j* follows in year *t*, based on I/B/E/S SIC codes.
$EVOL_{it}$	Defined in Panel A.
$MKRETURN_{it}$	Defined in Panel A.
$RETVAR_{it}$	Defined in Panel B.
$FEPS_{ijt}$	Analyst *j*'s forecasted earnings per share for firm *i* in year *t*, scaled by beginning-of-period total assets.
$FERR_{ijt}$	Analyst *j*'s forecast error for firm *i* in year *t*, calculated as the difference between actual earnings per share scaled by beginning-of-period total assets and *FEPS*.
$ACCPS_{it}$	Total accruals per share for firm *i* in year *t*, scaled by beginning-of-period total assets.
$CFOPS_{it}$	Operating cash flow per share for firm *i* in year *t*, scaled by beginning-of-period total assets.

References

Ahmed, A. S., Nainar, S. K., & Zhang, X. F. (2006). Further evidence on analyst and investor misweighting of prior period cash flows and accruals. *The International Journal of Accounting, 41*(1), 51-74.

Atwood, T., Drake, M. S., Myers, J. N., & Myers, L. A. (2011). Do earnings reported under IFRS tell us more about future earnings and cash flows? *Journal of Accounting and Public Policy, 30*(2), 103-121.

Barth, M. E., Cram, D. P., & Nelson, K. K. (2001). Accruals and the prediction of future cash flows. *The Accounting Review, 76*(1), 27-58.

Benson, K., Clarkson, P. M., Smith, T., & Tutticci, I. (2015). A review of accounting research in the Asia Pacific region. *Australian Journal of Management, 40*(1), 36-88.

Bhojraj, S., & Sengupta, P. (2003). Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors. *The Journal of Business, 76*(3), 455-475.

Bhushan, R. (1989). Firm characteristics and analyst following. *Journal of accounting and economics*, *11*(2), 255-274.

Bilinski, P. (2014). Do analysts disclose cash flow forecasts with earnings estimates when earnings quality is low? *Journal of Business Finance & Accounting, 41*(3-4), 401-434.

Bond, D., Bugeja, M., & Czernkowski, R. (2012). Did Australian firms choose to switch to reporting operating cash flows using the indirect method? *Australian Accounting Review, 22*(1), 18-24.

Bradshaw, M. T., Richardson, S. A., & Sloan, R. G. (2001). Do analysts and auditors use information in accruals? *Journal of Accounting Research*, *39*(1), 45-74.

Bushman, R. M., & Piotroski, J. D. (2006). Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of accounting and economics, 42*(1), 107-148.

Byard, D., Li, Y., & Yu, Y. (2011). The effect of mandatory IFRS adoption on financial analysts' information environment. *Journal of Accounting Research, 49*(1), 69-96.

Call, A. C., Chen, S., & Tong, Y. H. (2009). Are analysts' earnings forecasts more accurate when accompanied by cash flow forecasts? *Review of Accounting Studies, 14*(2-3), 358-391.

Call, A. C., Chen, S., & Tong, Y. H. (2013). Are analysts' cash flow forecasts naïve extensions of their own earnings forecasts? *Contemporary Accounting Research, 30*(2), 438-465.

Chalmers, K., Clinch, G., Godfrey, J. M., & Wei, Z. (2012). Intangible assets, IFRS and analysts' earnings forecasts. *Accounting & Finance, 52*(3), 691-721.

Chang, M., Jackson, A. B., & Wee, M. (2017). A review of research on regulation changes in the Asia- Pacific region. *Accounting & Finance*.

Chen, S., & Matsumoto, D. A. (2006). Favorable versus unfavorable recommendations: The impact on analyst access to management- provided information. *Journal of Accounting Research, 44*(4), 657-689.

Cheng, M., & Subramanyam, K. (2008). Analyst Following and Credit Ratings*. *Contemporary Accounting Research, 25*(4), 1007-1044.

Clement, M. B. (1999). Analyst forecast accuracy: Do ability, resources, and portfolio complexity matter? *Journal of accounting and economics, 27*(3), 285-303.

Clement, M. B., & Tse, S. Y. (2003). Do investors respond to analysts' forecast revisions as if forecast accuracy is all that matters? *The Accounting Review, 78*(1), 227-249.

Clement, M. B., & Tse, S. Y. (2005). Financial analyst characteristics and herding behavior in forecasting. *The Journal of finance, 60*(1), 307-341.

Collins, D. W., Hribar, P., & Tian, X. S. (2014). Cash flow asymmetry: Causes and implications for conditional conservatism research. *Journal of accounting and economics, 58*(2-3), 173-200.

Cotter, J., Tarca, A., & Wee, M. (2012). IFRS adoption and analysts' earnings forecasts: Australian evidence. *Accounting & Finance, 52*(2), 395-419.

Darlin, D. (1983). Picking a Loser: Young Analyst Defied 'Experts' and Foresaw Baldwin-United's Ills. *Wall Street Journal*, 1-14.

Das, S., Levine, C. B., & Sivaramakrishnan, K. (1998). Earnings predictability and bias in analysts' earnings forecasts. *Accounting Review*, 277-294.

De Bondt, W. F., & Thaler, R. H. (1990). Do security analysts overreact? *The American Economic Review*, 52-57.

DeFond, M. L., & Hung, M. (2003). An empirical analysis of analysts' cash flow forecasts. *Journal of accounting and economics, 35*(1), 73-100.

DeFond, M. L., & Hung, M. (2007). Investor protection and analysts' cash flow forecasts around the world. *Review of Accounting Studies, 12*(2-3), 377-419.

Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review, 87*(3), 723-759.

Duru, A., & Reeb, D. M. (2002). International Diversification and Analysts' Forecast Accuracy and Bias. *The Accounting Review, 77*(2), 415-433.

Elgers, P. T., Lo, M. H., & Pfeiffer Jr, R. J. (2003). Analysts' vs. investors' weightings of accruals in forecasting annual earnings. *Journal of Accounting and Public Policy, 22*(3), 255-280.

Ertimur, Y., Mayew, W. J., & Stubben, S. R. (2011). Analyst reputation and the issuance of disaggregated earnings forecasts to I/B/E/S. *Review of Accounting Studies, 16*(1), 29-58.

Ertimur, Y., & Stubben, S. (2005). Analysts’ incentives to issue revenue and cash flow forecasts. *Unpublished working paper, Stanford University*.

Farshadfar, S., & Monem, R. (2013). The usefulness of operating cash flow and accrual components in improving the predictive ability of earnings: a re- examination and extension. *Accounting & Finance, 53*(4), 1061-1082.

Fleming, G., Heaney, R., & McCosker, R. (2005). Agency costs and ownership structure in Australia. *Pacific-Basin Finance Journal, 13*(1), 29-52.

Gallery, N., Gallery, G., & Nelson, J. (2008). The reliability of mandatory cash expenditure forecasts provided by Australian mining exploration companies in quarterly cash flow reports. *Accounting Research Journal, 21*(3), 263-287.

Gibson, R., & Wall, W. (1984). Bank analysts try to balance their ratings. *The Wall Street Journal*, 33.

Givoly, D., Hayn, C., & Lehavy, R. (2009). The quality of analysts' cash flow forecasts. *The Accounting Review, 84*(6), 1877-1911.

Gordon, E. A., Petruska, K. A., & Yu, M. (2014). Do Analysts' Cash Flow Forecasts Mitigate the Accrual Anomaly? International Evidence. *Journal of International Accounting Research, 13*(1), 61-90.

Groysberg, B., Healy, P., & Maber, D. (2008). What Drives Financial Analyst Compensation at High-Status Banks? *Working Paper, Harvard Business School*

Haber, J., & Wallace, K. (2017). Preparing the Statement of Cash Flows Using the Direct Method. *The CPA Journal*.

Hail, L. (2007). Discussion of investor protection and analysts’ cash flow forecasts around the world. *Review of Accounting Studies, 12*(2-3), 421-441.

Hayes, R. M. (1998). The Impact of Trading Commission Incentives on Analysts' Stock Coverage Decisions and Earnings Forecasts. *Journal of Accounting Research, 36*(2), 299-320.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the econometric society*, 153-161.

Hewitt, M. (2009). Improving investors' forecast accuracy when operating cash flows and accruals are differentially persistent. *The Accounting Review, 84*(6), 1913-1931.

Hirshleifer, D., & Teoh, S. H. (2003). Limited attention, information disclosure, and financial reporting. *Journal of accounting and economics, 36*(1), 337-386.

Hodder, L., Hopkins, P. E., & Wood, D. A. (2008). The effects of financial statement and informational complexity on analysts' cash flow forecasts. *The Accounting Review, 83*(4), 915-956.

Horton, J., Serafeim, G., & Serafeim, I. (2013). Does mandatory IFRS adoption improve the information environment? *Contemporary Accounting Research, 30*(1), 388-423.

Houghton, K. A., Kend, M., & Jubb, C. (2013). The CLERP 9 audit reforms: Benefits and costs through the eyes of regulators, standard setters and audit service suppliers. *Abacus, 49*(2), 139-160.

Irvine, P. J. (2003). The incremental impact of analyst initiation of coverage. *Journal of Corporate Finance, 9*(4), 431-451.

Jacob, J., Lys, T. Z., & Neale, M. A. (1999). Expertise in forecasting performance of security analysts. *Journal of accounting and economics, 28*(1), 51-82.

Jones, S., & Higgins, A. D. (2006). Australia's switch to international financial reporting standards: a perspective from account preparers. *Accounting & Finance, 46*(4), 629-652.

Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. *Accounting Review*, 467-492.

Lees, F. A. (1981). *Public disclosure of corporate earnings forecasts*.

Linnenluecke, M. K., Birt, J., Chen, X., Ling, X., & Smith, T. (2017). Accounting research in Abacus, A&F, AAR, and AJM from 2008–2015: A review and research Agenda. *Abacus, 53*(2), 159-179.

Lys, T., & Soo, L. G. (1995). Analysts' forecast precision as a response to competition. *Journal of Accounting, Auditing & Finance, 10*(4), 751-765.

McNichols, M., & O'Brien, P. C. (1997). Self-selection and analyst coverage. *Journal of Accounting Research*, *35*, 167-199.

Miao, B., Teoh, S. H., & Zhu, Z. (2016). Limited attention, statement of cash flow disclosure, and the valuation of accruals. *Review of Accounting Studies, 21*(2), 473-515.

Mohanram, P. S. (2014). Analysts' cash flow forecasts and the decline of the accruals anomaly. *Contemporary Accounting Research, 31*(4), 1143-1170.

O'Brien, P. C., & Bhushan, R. (1990). Analyst following and institutional ownership. *Journal of Accounting Research*, 55-76.

Orpurt, S. F., & Zang, Y. (2009). Do Direct Cash Flow Disclosures Help Predict Future Operating Cash Flows and Earnings? *The Accounting Review, 84*(3), 893-935.

Pae, J., & Yoon, S.-S. (2012). Determinants of analysts’ cash flow forecast accuracy. *Journal of Accounting, Auditing & Finance, 27*(1), 123-144.

Pandit, S., Willis, R. H., & Zhou, L. (2012). Security analysts, cash flow forecasts, and turnover. *International Journal of Forecasting, 28*(4), 874-890.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies, 22*(1), 435-480.

Radhakrishnan, S., & Wu, S. L. (2014). Analysts' cash flow forecasts and accrual mispricing. *Contemporary Accounting Research, 31*(4), 1191-1219.

Shon, J., & Young, S. M. (2011). Determinants of analysts’ dropped coverage decision: The role of analyst incentives, experience, and accounting fundamentals. *Journal of Business Finance & Accounting, 38*(7- 8), 861-886.

Siconolfi, M. (1992). At Morgan Stanley, analysts were urged to soften harsh views. *The Wall Street Journal, 14*, A1-6.

Stickel, S. E. (1995). The anatomy of the performance of buy and sell recommendations. *Financial Analysts Journal, 51*(5), 25-39.

Stickney, C. P., Brown, P. R., & Wahlen, J. M. (2004). *Financial reporting and statement analysis: A strategic perspective*: South-Western Pub.

Tucker, J. W., & Zarowin, P. A. (2006). Does income smoothing improve earnings informativeness? *The Accounting Review, 81*(1), 251-270.

Table 2.1

Availability of analysts' cash flow forecasts in Australia

Panel A: Number and % of firms with analyst earnings forecasts and cash flow forecasts			
	Number of firms		
	Full sample period	Pre-IFRS period	Post-IFRS period
Number of firms			
With earnings forecasts and cash flow forecasts	728	256	472
With earnings forecasts only	60	30	30
Total	788	286	502
% of firms			
With earnings forecasts and cash flow forecasts	92.39%	89.51%	94.02%
With earnings forecasts only	7.61%	10.49%	5.98%
Total	100.00%	100.00%	100.00%
Panel B: Number and % of firm-years with analyst earnings forecasts and cash flow forecasts			
	Number of firm-years		
	Full sample period	Pre-IFRS period	Post-IFRS period
Number of firm-years			
With earnings forecasts and cash flow forecasts	5,404	1,958	3,446
With earnings forecasts only	571	284	287
Total	5,975	2,242	3,733
% of firm-years			
With earnings forecasts and cash flow forecasts	90.44%	87.33%	92.31%
With earnings forecasts only	9.56%	12.67%	7.69%
Total	100.00%	100.00%	100.00%
Panel C: Number and % of analysts issuing earnings forecasts and cash flow forecasts			
	Number of analyst-firm-years		
	Full sample period	Pre-IFRS period	Post-IFRS period
Number of analyst-firm-years			
With earnings forecasts and cash flow forecasts	39,007	15,214	23,793
With earnings forecasts only	1,668	1,228	440
Total	40,675	16,442	24,233
% of analyst-firm-years			
With earnings forecasts and cash flow forecasts	95.90%	92.53%	98.18%
With earnings forecasts only	4.10%	7.47%	1.82%
Total	100.00%	100.00%	100.00%

This table reports descriptive statistics on the availability of analysts' cash flow forecasts for Australian firms through the I/B/E/S Detail History International Edition database for the period of 1993–2015.

Table 2.2

Descriptive statistics

Panel A: Firm characteristics

	Mean			Std.Dev			Q1			Median			Q3		
	All	Issuing	Non issuing	All	Issuing	Non issuing	All	Issuing	Non issuing	All	Issuing	Non issuing	All	Issuing	Non issuing
DCFF	0.904	1.000	0.000	0.294	0.000	0.000	1.000	1.000	0.000	1.000	1.000	0.000	1.000	1.000	0.000
MKRETURN	0.149	0.146	0.171	0.603	0.590	0.711	-0.236	-0.231	-0.274	0.062	0.064	0.045	0.381	0.381	0.390
ABSACC	0.079	0.078	0.087	0.092	0.091	0.103	0.023	0.023	0.026	0.051	0.050	0.054	0.095	0.094	0.104
EVOL	0.056	0.054	0.080	0.117	0.112	0.160	0.010	0.010	0.012	0.021	0.021	0.026	0.051	0.050	0.072
CAPINTENSITY	5.229	5.113	6.334	27.956	27.688	30.398	0.100	0.100	0.107	0.318	0.320	0.298	0.966	0.961	1.007
Z-SCORE	6.297	6.255	6.698	11.759	11.614	13.053	2.074	2.067	2.161	3.262	3.237	3.513	5.590	5.532	6.304
SIZE	19.527	19.642	18.446	1.666	1.640	1.517	18.385	18.524	17.342	19.393	19.525	18.376	20.671	20.755	19.373
COVERAGE	6.661	7.058	2.902	5.513	5.548	3.329	2.000	2.000	1.000	5.000	5.000	1.000	11.000	11.000	3.000
INST	16.340	16.041	21.922	23.887	23.649	27.427	0.000	0.000	0.000	0.000	0.000	0.000	30.260	29.570	41.945
N	5975	5404	571	5975	5404	571	5975	5404	571	5975	5404	571	5975	5404	571

Panel B: Analyst and forecast characteristics

	Mean			Std. Dev			Q1			Median			Q3		
	All	Issuing	Non issuing	All	Issuing	Non issuing	All	Issuing	Non issuing	All	Issuing	Non issuing	All	Issuing	Non issuing
ACFF	-0.175	-0.175	.	0.284	0.284	.	-0.190	-0.190	.	-0.078	-0.078	.	-0.028	-0.028	.
NFIRM	11.804	11.778	12.418	9.044	8.883	12.211	6.000	6.000	4.000	10.000	10.000	8.000	14.000	14.000	16.000
NIND	3.394	3.408	3.072	2.728	2.709	3.132	1.000	1.000	1.000	2.000	3.000	2.000	4.000	4.000	4.000
BSIZE	28.362	28.593	22.941	13.493	13.460	13.133	19.000	19.000	11.000	29.000	29.000	23.000	38.000	38.000	32.000
EXPG	4.538	4.648	1.940	4.044	4.044	3.053	1.000	2.000	0.000	3.000	4.000	1.000	7.000	7.000	2.000
EXPF	0.996	1.030	0.215	1.632	1.650	0.821	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000	0.000
HORZ	120.228	120.132	130.071	76.879	76.769	87.054	59.000	59.000	53.000	110.000	110.000	110.000	139.000	139.000	199.000
DISP	0.105	0.105	.	0.122	0.122	.	0.032	0.032	.	0.060	0.060	.	0.128	0.128	.
MAFE	0.013	0.013	0.001	0.719	0.724	0.594	-0.273	-0.274	-0.250	0.099	0.105	0.000	0.524	0.529	0.384
MFEXP	-0.012	-0.012	-0.008	0.994	0.999	0.844	-1.000	-1.000	-1.000	-0.091	-0.116	0.000	0.500	0.500	0.000
MGEXP	0.015	0.018	-0.054	0.749	0.753	0.640	-0.629	-0.629	-0.617	-0.069	-0.075	0.000	0.520	0.572	0.298
DTOP10	0.059	0.061	0.020	0.236	0.239	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MNSIC	-0.586	-0.582	-0.683	0.342	0.343	0.318	-0.867	-0.867	-0.890	-0.731	-0.688	-0.841	-0.467	-0.467	-0.603
N	40675	39007	1668	40675	39007	1668	40675	39007	1668	40675	39007	1668	40675	39007	1668

This table presents descriptive statistics of the variables used in the empirical tests of analysts' cash flow forecasts for Australian firms for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. Variable definitions are provided in Appendix 1.

Table 2.3

Regression results for the determinants of analysts' issuance of cash flow forecasts

	Predicted Sign			(1) Dependent Variable	(2)	(3)
Independent Variable	Demand	Supply	Overall	*DCFF*	*DINITIATE*	*DTERMINATE*
Constant				-3.1485***	2.5496***	-0.5860
				(-4.33)	(4.20)	(-0.88)
MKRETURN	(?)	(+)	(+)	0.1969**	-0.0900	-0.1140
				(2.31)	(-1.53)	(-1.31)
ABSACC	(+)	(–)	(?)	0.8931**	-0.6239	0.7886
				(2.10)	(-1.49)	(1.29)
EVOL	(+)	(–)	(?)	-0.7442***	-0.3804	1.3290**
				(-2.91)	(-0.86)	(2.18)
CAPINTENSITY	(+)	(?)	(+)	0.0005	0.0034***	0.0054
				(0.44)	(2.82)	(1.42)
Z-SCORE	(–)	(?)	(–)	-0.0117***	0.0077**	-0.0147***
				(-3.87)	(2.20)	(-2.74)
SIZE	(?)	(+)	(?)	0.2818***	-0.2207***	0.0761**
				(7.25)	(-7.30)	(2.35)
COVERAGE	(?)	(+)	(?)	0.2286***	0.1202***	-0.0705***
				(18.68)	(15.80)	(-7.84)
INST	(–)	(+)	(?)	-0.0075***	0.0004	0.0041**
				(-3.57)	(0.22)	(2.16)
EXPG		(+)	(+)	-0.0127	-0.0239**	0.1657***
				(-1.12)	(-2.20)	(13.97)
NFIRM		(?)	(?)	0.0255***	0.1197***	-0.1706***
				(7.00)	(14.07)	(-16.84)
BSIZE		(+)	(+)	0.0321***	0.0108***	-0.0280***
				(9.90)	(4.45)	(-8.81)
Year dummies				Included	Included	Included
Industry dummies				Included	Included	Included
Observations				38,313	5,857	4,640
Pseudo R^2				0.519	0.138	0.211

This table presents regression results for the determinants of analysts' issuance of cash flow forecasts for Australian firms for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. *DCFF* is an indicator variable equal to one if a firm has both earnings and cash flows forecasts, and zero if a firm has earnings forecasts only. *DINITIATE* is an indicator variable equal to one when an analyst issues his first cash flow forecast for a firm, and equal to zero in the year immediately before the analyst's first cash flow forecast for the firm. *DTERMINATE* is an indicator variable equal to one in the year immediately after an analyst's last cash flow forecast for a firm, and equal to zero when an analyst issues his last cash flow forecast for a firm. Other variable definitions are provided in Appendix 1. Robust *t*-statistics using firm-clustered standards errors are reported in parentheses. ***, **, * indicates significance at the 1, 5 and 10% levels, respectively.

Table 2.4

Regression results for the determinants of analysts' cash flow forecast accuracy

		Dependent Variable
Independent Variable	Predicted Sign	*ACFF*
Constant		0.1919*** (3.18)
EXPF	(+)	0.0013* (1.67)
NFIRM	(–)	-0.0010*** (-3.49)
NIND	(–)	0.0034*** (3.05)
BSIZE	(+)	0.0004*** (3.09)
HORZ	(–)	-0.0002*** (-9.31)
DISP	(–)	-0.7499*** (-36.84)
COVERAGE	(+)	-0.0005 (-0.95)
SIZE	(?)	-0.0188*** (-5.94)
Lambda		0.0444*** (7.22)
Observations		24,854
Adjusted R^2		4.04%

This table presents regression results for the determinants of analysts' cash flow forecast accuracy for Australian firms for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. *ACFF* is analyst cash flow forecast accuracy, measured by the negative of the absolute value of the difference between actual and forecasted cash flows per share. Other variable definitions are provided in Appendix 1. Robust *t*-statistics using firm-clustered standards errors are reported in parentheses. ***, **, * indicates significance at the 1, 5 and 10% levels, respectively.

Table 2.5

Comparison of the accuracy of analysts' cash flow forecasts with those produced by time-series models

	Unsigned Forecast Error	
Type of Cash Flow Forecast	Mean	Median
(a) Analysts' Cash Flow Forecasts	0.444	0.316
(b) Time-Series Model (6)	0.549	0.489
(c) Time-Series Model (7)	0.652	0.856
(d) Time-Series Model (8)	0.705	1.000
(e) Time-Series Model (9)	0.675	1.000
Difference: (a) – (b)	-0.106	
(*p*-value)	(<0.001)	
Difference: (a) – (c)	-0.208	
(*p*-value)	(<0.001)	
Difference: (a) – (d)	-0.261	
(*p*-value)	(<0.001)	
Difference: (a) – (e)	-0.231	
(*p*-value)	(<0.001)	

This table reports the results of comparing the accuracy of analysts' cash flow forecasts with those produced by time-series models for Australian firms to which analysts issue earnings forecasts with cash flow forecasts for the period of 1993–2015. The accuracy of cash flow forecasts is measured by the *Unsigned Forecast Error*, defined as $|(Reported\ CFO_t - Forecasted\ CFO_t) / Reported\ CFO_t|$ for the forecasts generated from time-series models or the absolute value of the difference between actual and forecasted cash flows per share scaled by actual cash flows per share for analysts' cash flow forecasts. Unsigned forecast errors higher than or equal to 100% are removed to eliminate the effect of outliers. The following time-series models are employed in predicting future cash flows:

The random walk model, $CFO_{i,t} = CFO_{i,t-1}$ (6)

where cash flows from operations (*CFO*) for firm *i* in year *t* is predicted to be the same as *CFO* in the previous year;

AR (1) model, $CFO_{i,t} = a + b \times CFO_{i,t-1} + e_{i,t}$ (7)

AR (2) model, $CFO_{i,t} = a + b_1 \times CFO_{i,t-1} + b_2 \times CFO_{i,t-2} + e_{i,t}$ (8)

The extended AR (1) model as in Barth *et al.* (2001),

$CFO_{i,t} = a + b_1 \times CFO_{i,t-1} + b_2 \times \Delta AR_{i,t-1} + b_3 \times \Delta INV_{i,t-1} + b_4 \times \Delta AP_{i,t-1} + b_5 \times DEP_{i,t-1} + b_6 \times Other_{i,t-1} + e_{i,t}$ (9)

CFO in year *t* is modelled as a function of CFO in the previous year, changes in working capital items including accounts receivable, inventory (*INV*) and accounts payable (*AP*), depreciation and amortisation expense (*DEP*) and other accruals (*Other*) in equation (9).

Table 2.6

Regression results for the usefulness of analysts' cash flow forecasts in improving earnings forecast accuracy

		Dependent Variable
Independent Variable	Predicted Sign	*MAFE*
Constant		0.0021 (0.13)
DCFF	(+)	0.0259* (1.71)
DINITIATE	(+)	0.0735*** (5.87)
DTERMINATE	(–)	-0.1240*** (-8.63)
MFEXP	(+)	0.0109*** (3.33)
MGEXP	(+)	0.0197*** (4.38)
DTOP10	(+)	0.0051 (0.40)
MNSIC	(?)	0.0009 (0.25)
EVOL	(–)	-0.0388 (-1.24)
MKRETURN	(–)	-0.0107* (-1.88)
RETVAR	(–)	0.0228 (0.45)
Year dummies		Included
Industry dummies		Included
Observations		37,981
Adj. R^2		0.23%

This table presents regression results for the usefulness of analysts' cash flow forecasts in improving their earnings forecast accuracy for Australian firms for which analysts issue earnings forecasts with/without cash flow forecasts for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. $MAFE_{ijt}$, is the mean-adjusted absolute earnings forecast error, measured as $MAFE_{ijt} = -1 \times (FE_{ijt} - \overline{FE}_{jt}) / \overline{FE}_{jt}$, where FE_{ijt} is analyst *j*'s absolute earnings forecast errors for firm *i* in year *t*, and $\overline{FE}_{jt}$ is the mean absolute earnings forecast error across all analysts following firm *i* in year *t*. The absolute earnings forecast error is defined as the absolute value of the difference between actual and forecasted earnings per share. Other variable definitions are provided in Appendix 1. Robust *t*-statistics using firm-clustered standards errors are reported in parentheses. ***, **, * indicates significance at the 1, 5 and 10% levels, respectively.

Table 2.7

Regression results for the usefulness of analysts' cash flow forecasts in understanding the persistence of earnings components

	(1)	(2)	(3)	(4)
	Dependent Variable		Dependent Variable	
Independent Variable	*FEPS*		*FERR*	
Constant	0.0383***	0.0300***	-0.0368***	-0.0178***
	(9.66)	(3.61)	(-6.38)	(-3.11)
ACCPS	0.2758***	0.2576***	0.1245***	0.0640***
	(7.43)	(5.48)	(8.44)	(6.15)
CFOPS	0.2942***	0.4100***	0.1475***	0.0611***
	(8.52)	(9.43)	(7.44)	(9.58)
DCFF	-0.0082***		0.0222***	
	(-2.78)		(9.05)	
ACCPS×DCFF	-0.0154		-0.0653***	
	(-0.74)		(-4.88)	
CFOPS×DCFF	0.1218***		-0.0922***	
	(5.97)		(-9.75)	
DINI		0.0015		0.0069***
		(0.77)		(5.77)
ACCPS×DINI		0.0337**		-0.0236**
		(2.27)		(-2.56)
CFOPS×DINI		0.0423***		-0.0349***
		(4.28)		(-5.69)
Year dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Observations	37,414	37,414	37,314	37,314
Adj. R^2	39.3%	39.3%	6.1%	5.7%

This table presents regression results for the usefulness of analysts' issuance of cash flow forecasts in understanding the persistence of earnings components for Australian firms for which analysts issue earnings forecasts with/without cash flow forecasts for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. *FEPS* is forecasted earnings per share, scaled by beginning-of-period total assets. *FERR* is analyst forecasted error calculated as the difference between actual earnings per share scaled by beginning-of-period total assets and *FEPS*. Other variable definitions are provided in Appendix 1. Robust *t*-statistics using firm-clustered standards errors are reported in parentheses. ***, **, * indicates significance at the 1, 5 and 10% levels, respectively.

Table 2.8

Regression results for the determinants of analysts' issuance of cash flow forecasts using subsamples

	(1)	(2)	(3)	(4)
	Dependent Variable: *DCFF*			
Independent variables	Mining Firms	Non-mining Firms	Pre-IFRS Period	Post-IFRS Period
Constant	0.8811	-3.4634**	3.2226***	-4.9386***
	(0.79)	(-2.43)	(2.84)	(-3.52)
MKRETURN	0.4431***	0.0045	0.2131	0.1125
	(2.58)	(0.04)	(1.34)	(0.98)
ABSACC	0.7380	1.2519*	0.8142	1.1882**
	(1.06)	(1.71)	(0.80)	(2.05)
EVOL	-1.1695**	-0.7929**	-0.9010	-0.2324
	(-2.48)	(-2.17)	(-0.85)	(-0.64)
CAPINTENSITY	0.0014	-0.0028	-0.0040	0.0012
	(0.92)	(-1.00)	(-0.30)	(0.79)
Z-SCORE	-0.0230***	0.0288***	0.0217***	-0.0101**
	(-5.97)	(2.76)	(2.70)	(-2.13)
SIZE	0.0483	0.3007***	0.1041**	0.3274***
	(0.85)	(5.26)	(2.21)	(4.30)
COVERAGE	0.2234***	0.3077***	0.1772***	0.5199***
	(12.57)	(13.44)	(10.88)	(11.68)
INST	-0.0151***	-0.0020	-0.0023	-0.0086***
	(-4.08)	(-0.64)	(-0.23)	(-3.07)
EXPG	0.0177	-0.0271	-0.0005	-0.0446***
	(0.83)	(-1.64)	(-0.01)	(-3.02)
NFIRM	0.0107*	0.0303***	0.0082*	0.0518***
	(1.67)	(5.88)	(1.79)	(5.97)
BSIZE	0.0240***	0.0387***	0.0166***	0.0312***
	(4.42)	(8.22)	(3.11)	(6.01)
Year dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Observations	8,959	28,410	15,177	22,650
Pseudo R^2	0.475	0.55	0.586	0.407

This table presents regression results for the determinants of analysts' issuance of cash flow forecasts using subsamples of analysts' cash flow forecasts for Australian firms for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. *DCFF* is an indicator variable equal to one if a firm has both earnings and cash flows forecasts, and zero if a firm has earnings forecasts only. Other variable definitions are provided in Appendix 1. Robust *t*-statistics using analyst-clustered standards errors are reported in parentheses. ***, **, * indicates significance at the 1, 5 and 10% levels, respectively.

Table 2.9

Regression results for the determinants of analysts' cash flow forecast accuracy using subsamples

	(1)	(2)	(3)	(4)
	Dependent Variable: *ACFF*			
Independent Variables	Mining firms	Non-mining firms	Pre-IFRS period	Post-IFRS period
Constant	0.9120*	-0.1431	-1.3922*	0.2207
	(1.96)	(-0.71)	(-1.80)	(0.67)
EXPF	0.0004	0.0013	0.0002	0.0014
	(0.17)	(1.07)	(0.08)	(0.95)
NFIRM	-0.0011*	-0.0008	-0.0004	-0.0013***
	(-1.67)	(-1.25)	(-0.35)	(-2.77)
NIND	-0.0038	0.0033	-0.0056	0.0054***
	(-0.47)	(1.54)	(-1.04)	(2.98)
BSIZE	0.0009**	0.0003	0.0002	0.0005***
	(2.47)	(1.40)	(0.76)	(2.69)
HORZ	-0.0005***	-0.0001***	-0.0001**	-0.0002***
	(-5.39)	(-3.21)	(-2.31)	(-4.69)
COVERAGE	-0.4120***	-0.8766***	-0.3354	-0.7846***
	(-2.97)	(-4.21)	(-0.93)	(-4.18)
DISP	-0.0077*	0.0016	0.0010	-0.0003
	(-1.91)	(0.76)	(0.12)	(-0.12)
SIZE	-0.0520*	-0.0010	0.0457	-0.0237
	(-1.91)	(-0.11)	(1.29)	(-1.30)
Lambda	0.0657	0.0215	0.1366**	0.0738*
	(0.97)	(1.05)	(2.00)	(1.70)
Observations	5,786	19,068	5,977	18,877
Adj. R^2	6.78%	7.03%	2.67%	6.92%

This table presents regression results for the determinants of analysts' cash flow forecast accuracy using subsamples of analysts' cash flow forecasts for Australian firms for the period of 1993–2015. All continuous variables are truncated at the top and bottom 1%. *ACFF* is analyst cash flow forecast accuracy, measured by the negative of the absolute value of the difference between actual and forecasted cash flows per share. Other variable definitions are provided in Appendix 1. Robust *t*-statistics using analyst-clustered standards errors are reported in parentheses. ***, **, * indicates significance at the 1, 5 and 10% levels, respectively.

CHAPTER THREE

(Paper Two)

ECONOMIC DETERMINANTS OF CASH FLOW ASYMMETRIC TIMELINESS

3.1 Introduction

In his seminal work, Basu (1997) documents the well-known asymmetric timeliness of earnings and interprets it as evidence of conditional conservatism. If the asymmetric timeliness of earnings captures conservatism, one would expect the effect to surface in the accrual rather than the cash flow component of earnings. However, similar to earnings and accruals, operating cash flows (CFO) are also found to be more sensitive to bad economic news than to good news, which is referred to as the asymmetric timeliness of CFO.[12] The presence and pervasiveness of cash flow asymmetry is therefore puzzling. Yet the explanations behind it have received little attention.

This study attempts to shed light on this puzzle through comprehensive analyses of the CFO asymmetry. It builds on the work of Collins et al. (2014). They argue that different patterns of CFO over a firm's life cycle, stemming from the differential weight that the market places on assets in place versus growth options, lead to predictable variations in CFO asymmetry. Steele (2011) suggests that product pricing is the main cause of CFO asymmetry because managers are more willing to reduce prices in response to bad economic news, but they seem to be relatively reluctant to increase prices in response to good news (Blinder, Canetti, Lebow, & Rudd, 1998; Okun, 1981).

These explanations focus on how managers adjust operations in response to bad versus good economic news. They largely ignore the governance and monitoring role played by stakeholders within and outside the firm. In addition, these studies provide mixed findings and test their proposed explanations without controlling for alternative explanations. The current study proposes and examines two new explanations for CFO asymmetric timeliness, namely (i) cost stickiness and (ii) conservatism demands, along with the two existing

[12] Throughout this study, CFO asymmetric timeliness and CFO asymmetry are used interchangeably.

explanations based on firm life cycle (Collins et al., 2014) and product pricing (Steele, 2011). It also compares the relative importance of these four factors in driving CFO asymmetry.

Cost stickiness refers to the phenomenon in which operating costs tend to decrease less with a sales decline than they rise with an increase of equivalent magnitude in sales (Anderson, Banker, & Janakiraman, 2003). That is, costs are 'sticky'. Since earnings are the difference between sales and costs, cost stickiness implies that sales decreases affect earnings more than sales increases and thus earnings are more sensitive to bad news (Banker et al., 2016). This effect in sales and costs could spill over to operating cash inflows and outflows. As such, I expect CFO to decrease to a greater extent in response to bad news than increase in response to good news.

The second explanation for CFO asymmetry relates to the extant literature of conditional conservatism.[13] Watts (2003a) identifies four main determinants of conservatism: contracting, litigation, taxation and regulation. These conservatism demands from external stakeholders are likely to incentivize managers to be conservative. In particular, debt-holders and shareholders would demand CFO asymmetry to counteract firms' incentives for real activity management by imposing contracting costs via governance mechanisms. CFO asymmetry can also be driven by asymmetric litigation costs faced by auditors and firms, and the regulation costs imposed by regulators and standard-setters due to their preferences with regard to conservatism. Finally, the taxation demand suggests that firms have incentives to engage in conservative business operations to defer tax costs, thereby leading to CFO asymmetry.

Using a sample of U.S. firms during 1988–2016, this study documents consistent evidence of the presence of CFO asymmetry. Consistent with the cost stickiness explanation,

---

[13] See Armstrong, Guay, and Weber (2010) and Watts (2003a) for a review.

the results suggest that the sticky nature of operating costs is a factor that causes CFO to be more sensitive to bad news. To examine the conservatism demand explanation, I follow the conservatism literature (e.g. García Lara et al., 2009; Qiang, 2007) to construct the demand variables, using the expected costs imposed for debt contracting, equity contracting, litigation, accounting regulation and expected reduction in taxation costs. I find consistent evidence in support of the debt and equity contracting demand, the litigation demand and the taxation demand. When re-examining the two existing explanations for CFO asymmetry, I find evidence in line with the life cycle explanation (Collins et al., 2014), but inconsistent with the product pricing explanation (Steele, 2011).

The study then examines the relative importance of the above explanations in elucidating CFO asymmetry. The results suggest that cost stickiness and the demands from equity contracting and taxation continue to be important determinants of CFO asymmetry, even after accounting for firm life cycle. The higher explanatory power of the regression models compared with those derived from testing the explanations separately implies that these explanations in combination can better explain CFO asymmetry. However, I also find that all explanations together cannot fully explain the presence of CFO asymmetric timeliness.

Finally, the study compares different explanations in explaining cash flow versus accruals asymmetric timeliness. Collins et al. (2014) suggest removing the CFO cash flow component from earnings and using accruals asymmetric timeliness in tests of conditional conservatism. Qiang (2007) and García Lara et al. (2009) use earnings-based asymmetric timeliness and report some mixed evidence on economic determinants of conditional conservatism such as taxation and regulation. The results show that cost stickiness and litigation explain both CFO and accruals asymmetric timeliness. However, the explanations based on firm life cycle, contracting and taxation are found to induce CFO rather than accruals asymmetric timeliness. This finding reinforces the suggestion made in Collins et al. (2014) that researchers should consider and examine cash flow *and* accruals asymmetric timeliness seperately in tests of conditional conservatism. The finding also calls into question results from previous studies that predominately rely on earnings-based measures in their tests.

This study contributes to the emerging literature on cash flow asymmetry (Banker et al., 2016; Collins et al., 2014; Oded & Weiss, 2013; Steele, 2011). It proposes and tests two new explanations for CFO asymmetry – (i) cost stickiness and (ii) conservatism demands, in addition to testing the two existing explanations (Collins et al., 2014; Steele, 2011). To my knowledge, this investigation is the first comprehensive study on testing the drivers of CFO asymmetric timeliness. In addition, it compares the relative importance of these factors and finds that these factors in combination better explain CFO asymmetry, but no one factor dominates the others.

This paper also has important implications for investors, regulators and financial practitioners. First, CFO plays an essential role in providing useful financial information for decision making. This research sheds light on the presence and causes of the attributes (asymmetric timeliness) of CFO and earnings. Since cash flows are the key inputs in the valuation models, CFO asymmetry therefore has particular importance for financial analysts in improving the forecasting accuracy of cash flows and when conducting asset pricing and security valuations.

The rest of the paper is organized as follows. Section 3.2 reviews relevant literature and develops hypotheses. Section 3.3 discusses sample construction, variable measurement and descriptive statistics. Section 3.4 presents the results of the examination of different explanations of CFO asymmetry. Section 3.5 concludes.

3.2 Literature Review and Hypothesis Development

3.2.1 Review of literature

Accounting conservatism has long been perceived as an important property of accounting information in financial statements. It can be deemed conditional versus unconditional depending on whether it occurs due to economic news events, as seen in Watts (2003a) and Beaver and Ryan (2005). Unconditional conservatism represents the *ex ante* under-measurement of the book value of net assets below their expected market values.[14] Conditional conservatism refers to the practice of timelier recognition of losses versus gains, which is the focus of this study.[15] Basu (1997) captures conditional conservatism using asymmetric timeliness based on a piecewise earnings-return regression model. Studies have since extensively adopted the Basu (1997) approach to examine the determinants and consequences of conditional conservatism.[16]

However, the asymmetric timeliness of Basu (1997) focuses on earnings, which consists of two components – accruals and operating cash flows. Unlike the latter, accruals reflect managerial estimates and accounting policy choices. As conservatism is an accounting phenomenon, previous conservatism research typically assumes that the asymmetric timeliness in earnings, identified in Basu (1997), should be more evident in accruals than in operating cash flows. Contrary to this expectation, recent studies have found consistent

[14] Examples of unconditional conservatism involve the accelerated depreciation method, historical cost accounting, and the accounting method expensing intangible assets immediately rather than amortizing them at an expected economic amortisation rate (Beaver & Ryan, 2005).
[15] Examples include the lower of market or cost accounting method and the timely recognition of all-assets impairment while recognizing the expected added value until the realisation of expected values.
[16] See Armstrong, Guay and Weber (2010) for a review.

evidence of asymmetric timely loss recognition in operating cash flows (Ball, Kothari, & Nikolaev, 2013a; Collins et al., 2014; Dietrich, Muller, & Riedl, 2007; Steele, 2011).[17] This finding suggests that the conservative actions taken in response to bad economic news have cash flow consequences.

While the accounting literature has provided ample evidence of the determinants of accounting conservatism, very limited research exists on the determinants of cash flow asymmetric timeliness.[18] To date, two exceptions are proposed and examined in Collins et al. (2014) and Steele (2011), respectively. Collins et al. (2014) argue that the market places different weights on assets in good versus bad news environments. This situation leads to different patterns of operating cash flows over a firm's life cycle and predictable variations in operating cash flow asymmetry across firms. As operating cash flows mainly result from a firm's fundamental earnings generating process, they are expected to vary systematically over the firm's life cycle (Ball et al., 2013a; Basu, 1997; Dickinson, 2011). Consistent with this argument, Collins et al. (2014) use firm size, age, capital expenditures and sales growth to measure a firm's life-cycle stage, and they find that CFO asymmetric timeliness varies systematically with a firm's life-cycle stage.

Steele (2011) argues that product pricing is the main driver of CFO asymmetric timeliness based on higher price rigidity being shown for price mark-ups. Okun (1981) and Blinder et al. (1998), in their respective surveys, find that managers are inclined to reduce prices in response to bad economic news but seem to be relatively reluctant to increase prices in response to good economic news. Steele (2011) reports evidence in support of this

[17] For example, Basu (1997) is among the first to document that both earnings and operating cash flows recognise bad news in a timelier fashion than good news.
[18] For example, Basu (1997) documents the existence of CFO asymmetric timeliness but does not provide any explanation.

argument and finds that firms with greater pricing power exhibit lower levels of asymmetric timeliness in CFO and earnings.

Although the life cycle and product pricing explanations provide some insights into CFO asymmetry, they have limitations. First, these explanations are predominantly based on empirical evidence and lack a theoretical foundation. For example, the rationale behind the life cycle explanation is used by Dechow, Ge, and Schrand (2010) to argue that Basu's earnings asymmetric timeliness measure captures characteristics of both the accounting measurement system and the firm's fundamental process of earnings generation. Second, the explanations focus on the supply-side perspectives, while ignoring the role of demand-side factors such as the demands of other stakeholders. In fact, Watts (2003a, 2003b) and others suggest that the demands of stakeholders within and outside the firm are the main drivers of conditional conservatism as captured by the asymmetric timeliness of earnings.

3.2.2 Hypothesis development

Cost stickiness and CFO asymmetric timeliness

Building on the extant literature of sticky cost behaviours, Banker et al. (2016) find that cost stickiness is an important factor affecting asymmetric timeliness of earnings. Unlike fixed and variable costs that vary symmetrically with sales changes, some portion of costs are sticky (e.g. Anderson et al., 2003; Banker, Byzalov, & Chen, 2013; Weiss, 2010). These costs tend to decrease less with a sales decline than they rise with an increase of equivalent magnitude in sales. Such an asymmetric response stems from the operational asymmetry of managers regarding these costs in response to different economic news, where bad (good) news coincide with sales decreases (increases).

Specifically, when sales decrease (bad economic news), managers tend not to cut under-utilized resources to avoid incurring associated adjustment costs.[19] However, when sales increase, managers have less discretionary power and need to incur costs to ensure that enough resources are in place to satisfy the increased demand. The asymmetry in managerial operational decisions in response to different economic environments leads to the asymmetric behaviour for costs such as Selling, General and Administrative expenses (SG&A), Cost of Goods Sold (COGS) and other operating costs. These costs increase to a greater extent in response to increased sales than they decrease in response to reduced sales. Banker et al. (2016) apply this notion to the asymmetric timeliness of earnings and argue that earnings tend to be more sensitive to bad economic news than to good economic news in the presence of sticky cost behaviours.[20]

I argue that cost stickiness can play an important role in driving CFO asymmetry as CFO is one of the two key components of earnings. In fact, managerial operational decisions with regard to real activities giving rise to cost stickiness, pre-empts accruals management in financial reporting and will affect CFO directly. To the extent that the recognized costs have cash flow consequences, the asymmetric responses of sticky costs will have direct impacts on operating cash flows. Thus, the hypothesis for cost stickiness is stated as below:

Hypothesis 1**:** *The estimates of asymmetric timeliness of operating cash flows are affected by a firm's sticky cost behaviour.*

[19] Examples of adjustment costs include disposal and restoration costs of equipment and labour costs resulting from recruitment and separation activities.

[20] Since earnings (sales) and costs are of opposite sign, earnings will decrease to a greater extent in a bad economic news environment than they will increase in a good economic news environment in the presence of sticky costs.

Demand for conservatism and CFO asymmetric timeliness

Under the Conceptual Framework for Financial Reporting (2010), one of the primary objectives of financial reporting is to meet shareholders' demands. According to agency theory (Jensen & Meckling, 1976), when external parties believe their self-interests are best served if earnings are reported conservatively, they will try to impose conservative practices on managers, using various channels such as the signing of contracts, standard-setting and regulation (Bushman & Piotroski, 2006; Watts, 2003a, 2003b) , which will increase firms' agency costs. In response to this, managers will have incentives to demonstrate to stakeholders that they have satisfactorily met their demands by engaging in conservative financial reporting practices. This can be achieved mainly in two ways: managing financial reporting directly, or engaging in conservative real decisions. The latter will lead to asymmetric timeliness in operating cash flows and in turn will affect financial reporting indirectly. In this study, I consider four types of external conservatism demands in Watts (2003a, 2003b): contracting, litigation, regulatory and taxation. Prior studies have examined the effects arising from these demands on earnings asymmetric timeliness (e.g. García Lara et al., 2009; Qiang, 2007; Watts, 2003a, 2003b), while the current study focuses on CFO asymmetric timeliness.

<u>Contracting</u>

Theoretically, the existence of information asymmetry, asymmetric payoff and limited liability provides managers with more incentive and opportunities to engage in aggressive accounting practices to inflate or distort reported earnings to their own advantage. This practice runs counter to the interests of relevant stakeholders who use or regulate the financial information; hence, potential conflicts of interests exist between managers and these parties, giving rise to the 'agency problem' (Jensen & Meckling, 1976). The agency problem motivates the interested parties to impose various mechanisms to constrain the manager's abilities and incentives to manipulate earnings upward, thereby aligning the interests of these two parties. Conservative financial reporting is one of the mechanisms used to counteract the manager's predisposition through incentives to engage in aggressive reporting.

The debt contract is one of the most widely used mechanisms imposed on firms for contracting purposes. Since there is an asymmetric payoff for creditors from the contracts with respect to net assets, debt holders are more concerned with the lower ends of the earnings and net asset distributions. Their goal is to ensure that the minimum amount of net assets will be greater than their contracted sum, and thus they will prefer conservative practices.[21] For example, debt contracts routinely have minimum tangible net worth requirements (Dichev & Skinner, 2002). When firms make a profit for the year, creditors tend to increase the requirement; however, they tend not to make any adjustment when firms report losses. The implementation of such tighter contract covenants induces accounting conservatism and will reduce the firm's cost of capital. Consequently, managers are expected to have higher incentives to engage in conservative reporting practices, resulting in the asymmetric timeliness of earnings.[22]

While the above explanation has been widely examined both theoretically and empirically in the conservatism literature, I argue that this notion also applies to firm's cash flow activities. Aside from engaging in conservative reporting practices, managers facing strong contracting demand for conservatism would have higher incentives to make

[21] Specifically, at maturity of the loan, if the firm's net assets are above the face value of the debt, debt-holders do not receive any additional compensation. However, when the firm cannot produce enough net assets to cover the promised payments to the debt-holders at maturity, limited liability causes debt-holders to receive less than the contracted sum, perhaps the entire net assets of the firm.
[22] See Ball, Robin, and Sadka (2008), García Lara et al. (2009), Guay and Verrecchia (2006), Holthausen and Watts (2001), Qiang (2007), Watts (2003b).

conservative operational decisions with cash flow consequences. This leads to the following hypothesis:

Hypothesis 2a: *The asymmetric timeliness in operating cash flows is positively associated with the contracting demand for conservatism.*

Litigation

Watts (2003a) suggests that an asymmetric loss function exists in litigation costs for self-interested auditors and regulators as they incur greater penalties for overstated accounting numbers than understated numbers. Responding to this asymmetric litigation risk and the asymmetric litigation costs imposed by the legal environment, regulators and auditors will demand more conservative practices by managers. The higher the level of litigation risk, the greater the concern that auditors and regulators have about potential lawsuits and the associated costs, which will induce a higher demand for conservatism.

I argue that litigation demand can also affect managerial decisions over conservative operational activities and lead to CFO asymmetric timeliness. As suggested by Roychowdhury (2006) and Graham, Harvey, and Rajgopal (2005), firms tend to engage in shifting decisions on real activities over accounting choices, because real activities decisions are subject to less scrutiny from regulators and auditors. Therefore, the higher asymmetric loss function of litigation costs may lead to higher litigation demand from regulators and auditors, which in turn leads to a higher degree of CFO asymmetric timeliness. This gives rise to the following hypothesis:

Hypothesis 2b: *CFO asymmetric timeliness is positively associated with the litigation demand for conservatism.*

Regulation

Prior studies suggest that regulation also provides incentives for conservatism. Accounting standard-setters and regulators prefer conservatism and induce it by imposing regulation costs on firms. The political cost hypothesis proposed in positive accounting theory (Watts & Zimmerman, 1986) suggests that firms tend to declare lower profits by using different procedures to avoid attracting the attention of politicians. Facing demands from political parties, managers are expected to behave conservatively. In addition, Roychowdhury (2006) document that when managers face the trade-off between accounting choices and real activity decisions that affect reported earnings, they tend to choose real activities because they are less likely to be monitored by regulatory bodies (Graham et al., 2005). Thus, I expect that conservative real activities arising from the regulation demand lead to CFO asymmetric timeliness. The hypothesis for regulatory demand is stated as below:

> ***Hypothesis 2c:*** *CFO asymmetric timeliness is positively associated with the regulatory demand for conservatism.*

<u>Taxation</u>

The taxation demand for conservatism suggests that managers have incentives to report transactions conservatively so as to minimize income tax liability. From the perspective of real activities, Badertscher, Phillips, Pincus, and Rego (2009) argue that, besides accounting choices, managers can choose to make changes to a firm's operating activities to lower both book income and taxable income, thereby generating current tax benefits. Moreover, managers can also lower reported earnings in a book-tax conforming manner by not accelerating the recognition of revenue and not delaying real operating expenses, thereby reducing the present value of tax payments. Thus, I expect that, when a firm's tax pressure increases, its incentives to minimize tax payments through conservative real activities will be higher, giving rise to a higher degree of CFO asymmetry. This leads to the following hypothesis:

> ***Hypothesis 2d:*** *CFO asymmetric timeliness is positively associated with the taxation demand for conservatism.*

Firm life cycle and CFO asymmetric timeliness

Collins et al. (2014) suggest that the degree of CFO asymmetry is determined by the life cycle stage of the firm, because the properties of CFO are influenced by its real activities operations. When economic climates change, the criteria used to evaluate firms also change. Managers consequently have incentives to adjust their decisions accordingly. However, the magnitude of the adjustment is expected to be larger for young and growth firms relative to mature firms, thereby leading to CFO asymmetric timeliness.

As argued in Collins et al. (2014), in a good news environment, young firms are mainly evaluated by their growth potential and opportunities. These factors are positively correlated with investment in working capital and research and development that require large cash outflows rather than the cash inflows generated from assets in place (e.g. Lundholm & Sloan, 2012). In response, managerial decisions regarding cash usage mainly focus on investment without much consideration to the generation of cash inflows.

However, when business environments turn bad, young firms are more likely to face difficulties in financing their sustainable growth compared to mature firms as their survival becomes a major concern to investors. Under such circumstance, having sufficient cash flow on hand becomes critically important, and managers in young firms would respond quickly by adjusting their decisions on cash flow management. Therefore, young firms are expected to exhibit significant CFO asymmetry.

In contrast, mature firms are largely evaluated based on their performance in utilizing their assets to generate cash inflows. The cash inflows are closely associated with firm value as they are perceived to reflect the firm's productivity of existing business operations (Bushman, Piotroski, & Smith, 2011; Healy & Palepu, 2001; Lundholm & Sloan, 2012).[23] Compared to young firms at early life cycle stages, the CFO asymmetry is less obvious for mature firms because the influence of external business environments on their cash flow decisions is relatively low.

Consistent with Collins et al. (2014), I expect that the larger reflection asymmetry in adjusting cash flow management among firms at an early life cycle stage leads to higher CFO asymmetric timeliness. This leads to the following hypothesis:

***Hypothesis 3*:** *Young growing firms in early life cycle stages exhibit higher degrees of CFO asymmetry than mature firms in later life cycle stages.*

Product pricing and CFO asymmetric timeliness

Steele (2011) conjectures that CFO asymmetric timeliness can be largely attributable to product pricing based on the survey results by Okun (1981) and Blinder et al. (1998) that show higher price rigidity for price mark-ups. In other words, managerial adjustment of prices in response to the external environment is more extensive when a firm is facing bad news rather than good news. In this explanation, bad (good) news refers to negative (positive) demand change and supply shocks.

In particular, when facing a negative demand shock (reduced demand), managers are confronted by a trade-off between reducing the price of the product to maintain sales versus

[23] In addition, since mature firms are less likely to suffer large financing difficulties during bad economic environments, the change of environment will not substantially influence their management of cash flows.

reducing the quantity of production and products sold.[24] In contrast, when demand increases, managers are reluctant to increase prices because they face high pressure from competitors or they want to maintain and/or increase market share and keep good customer relationships.[25] As a result, there is an asymmetric response in adjusting product prices. Managers are reluctant to respond to positive demand shocks by increasing selling prices, whereas they are more reluctant to decrease prices during a negative demand shock. This asymmetry leads to the CFO asymmetric timeliness.[26]

Steele (2011) finds supportive empirical evidence that sticky product pricing leads to CFO asymmetric timeliness. In line with Steele (2011), I expect that a firm's cash inflows from sales would decrease to a greater extent when an adverse economic shock occurs as compared to when a favourable economic shock occurs. However, cash outflows for inventory (i.e. payment for purchases of raw materials, manufacturing overheads and factory wages) would be less sensitive to negative returns (Steele, 2011). The net effect of both cash flows (the difference between cash inflows from sales and cash outflows for inventory) is thus expected to exhibit asymmetric relation to negative returns. The hypotheses for the product pricing explanation are stated as below:

Hypothesis 4a**:** *Cash inflows from sales are more asymmetrically sensitive to bad economic news than cash outflows for inventory.*

Hypothesis 4b**:** *Gross cash flows from selling activities are more asymmetrically sensitive to bad economic news than to good economic news.*

---

[24] In the survey conducted on 78 firms by Blinder et al. (1998), 36.8% of firms prefer to reduce the quantity of production, 27% prefer to reduce product prices, and 36.2% prefer to reduce both.

[25] Blinder et al. (1998) reveal that when facing increased demand, 61.5% of firms indicate that they prefer to increase the quantity of production, 4.5% indicate that they prefer to increase prices, and 34% prefer to increase both.

[26] For supply shocks, Steele (2011) suggests that when facing price increases in raw materials and production costs (bad economic news), firms tend to be reluctant to increase prices in an effort to maintain sales, competitiveness and customer relations. However, when facing decreased input prices (good economic news), firms are more willing to offer price reductions or discounts.

3.3 Sample, Research Methodology and Descriptive Statistics

3.3.1 Sample

The initial sample consists of all firms with sufficient accounting and stock price data required from the merged CRSP and COMPUSTAT databases for the period of 1988–2016. Based on the initial sample, firm-year observations with a negative book value of equity are deleted. Moreover, the firms in regulated industries (SIC codes between 4400 and 5000) and financial firms (SIC codes between 6000 and 6999) are eliminated. To mitigate the effects of outliers, all continuous regression variables are truncated at the top and bottom 1%.

3.3.2 Measures of operating cash flows, earnings and accruals

The key variable used in this study is operating cash flows (CFO), measured with the data from the statement of cash flows following (Hribar & Collins, 2002) and Collins et al. (2014).[27] It is deflated by the lagged market value of equity (Collins et al., 2014; Khan & Watts, 2009). I also use earnings (*EARN*) and accruals (*ACCRUAL*) in the analysis to obtain results comparable to prior studies. Earnings is measured as net income before extraordinary items scaled by the lagged market value of equity. Accruals are calculated as the difference between earnings and CFO.

[27] Prior studies also use the balance sheet approach to measure CFO indirectly (e.g. Ball, Kothari, & Robin, 2000; Basu, 1997), and they calculate CFO as the difference between earnings and accruals estimated from changes in balance sheet working capital accounts plus depreciation and amortisation. Collins et al. (2014) use both approaches to measure CFO and reveal that both methods lead to similar results for the presence of CFO asymmetric timeliness. However, Collins et al. (2014) find that the degree of asymmetric timeliness exhibited in CFO calculated using the balance sheet approach is significantly higher than that exhibited using the cash-flow approach. They attribute such difference to the balance sheet approach capturing some extent of accrual asymmetric timeliness resulting from accrual management. As the aim of this study is to identify the causes of cash flow asymmetry, it is more appropriate to use the cash-flow statement approach.

3.3.3 Measures of determinants of CFO asymmetry

To test the explanation of cost stickiness, three explanatory variables are employed following Banker et al. (2016):

- The level of current period revenues (*SALES*), measured as sales revenue scaled by the lagged market value of equity. This variable is included to control for fixed and variable costs.[28]
- The direction of sales change (*DSALES*), which is an indicator variable equal to one if sales revenue decreases relative to the prior year, and zero otherwise.
- The percentage of sales change (*SALESCHG*) from period $t-1$ to year t, which captures the degree of asymmetry with respect to equivalent percentage sales increases and decreases (Anderson et al., 2003).

I use different explanatory variables to respectively capture the debt contracting, equity contracting, litigation, regulation and taxation demands for conservative real activities, which are discussed below in turn.

- Debt contracting demand: The demand for debt contracting (*CtrCost_Dt*) is measured as the proportion of private debt (Dichev & Skinner, 2002).[29] A higher level of debt contracting demand is expected to lead to higher degree of CFO asymmetry.
- Equity contract demand: Two proxies are used to capture this demand. The first proxy is a firm's equity issuance (*EQUITY_ISSUE*) following Lawrence, Sloan, and

[28] Since fixed and variable costs imply a linear relationship between earnings and sales, they are not likely to distort the estimates of conditional conservatism and are likely to manifest as a symmetric relation between stock returns and earnings.

[29] With respect to the measurement of debt contracting demand (expected costs imposed by debt contracting), some papers use leverage as a proxy for the demand imposed by debt-holders for conditionally conservative reported earnings (e.g. García Lara et al., 2009). However, ample evidence exists against the use of leverage as a good proxy for the tightness of covenants (e.g. Begley & Freedman, 2004). Failing to find strong correlations between leverage and covenant slack, Begley and Freedman (2004) question the use of leverage as a proxy for earnings management incentives. Therefore, firm leverage is not included as a proxy for debt contracting demand in this study.

Sun (2013), measured as the firm's sale of common and preferred stock for fiscal year *t* scaled by the lagged market value of equity. Prior literature indicates that the higher the level of equity issuance, the higher the level of demand for conservatism. Accordingly, I expect a positive association between the level of equity issuance and CFO asymmetry. I also use an alternative proxy for the demand for equity contracting, the GIM index (*GIM*), and find similar results.[30]

- Litigation demand: Following Qiang (2007) and García Lara et al. (2009), I proxy the conservatism demand for litigation by using auditor litigation risk (*LitiCost*), which increases with the probability of being sued. Auditor litigation risk is measured by an indicator variable that is set equal to one if the company's auditor is a Big 4 auditing firm[31] and if the fiscal year is in a high auditor litigation period, and zero otherwise.[32] Previous literature documents that Big 4 auditors are more likely to lower the proportion of risky clients during a period of increasing auditor liability and to provide higher-quality auditing services.[33] As the sample period starts from 1988, two periods comprising 1988-1995 and 2001-2005 are considered as the periods of high auditor

[30] The GIM index is a corporate governance strength indicator constructed by Gompers, Ishii, and Metrick (2003). Gompers et al. (2003) construct the GIM index using the incidence of 24 governance rules concerning both internal and external corporate governance provisions to proxy for the level of shareholder rights. Higher levels of GIM indicate weaker shareholder rights, higher management power, and weaker corporate governance (low anti-takeover protection and low CEO involvement in board decisions). Since prior literature suggests that firms with better corporate governance tend to be more conservative, I expect a negative association between the level of GIM index and CFO asymmetry. The coefficient of *GIM * DRET * RET* is negative and significant (coefficient = -0.053; *t* = -2.36).

[31] The Big 4 auditors are Deloitte, Ernst & Young, KPMG and PricewaterhouseCoopers. Throughout the paper, I use Big 4 generically to designate Big 4, Big 5 and Big 6 auditors, depending on the sample period.

[32] Big 4 auditing firms are expected to bear greater litigation costs for several reasons (García Lara et al., 2009; Qiang, 2007). First, prior evidence suggests that these firms are considered to have 'deep pockets' and therefore the probability of being sued is relatively high for them (Khurana & Raman, 2004). Second, litigation costs for these firms are higher since they face larger damage and greater harm to their reputation (Palmrose, 1988).

[33] See Jones and Raghunandan (1998), Becker, DeFond, Jiambalvo, and Subramanyam (1998), Francis, Maydew, and Sparks (1999), and Gul, Tsui, and Dhaliwal (2006).

litigation risk following the literature.[34]

- Regulation demand: The expected costs imposed via regulation (*ReguCost*) is measured as a binary variable set equal to one if a firm's sales deflated by industry total sales or the number of firms in the industry is in the top quartile, and zero otherwise.[35] Industry classification is based on the two-digit SIC code. Prior studies suggest that compared with small market-share firms, firms with larger market share are more likely to be noticed and regulated. The use of a dummy variable, rather than a continuous variable, reflects the notion that only firms with sufficiently large market share tend to be regulated.

- Taxation demand: I follow Qiang (2007) and García Lara et al. (2009) to measure the expected reduction in tax costs (*TaxCost*) as the degree of conformity between tax income and book income. *TaxCost* is an indicator variable that takes the value of one if the three-year average of the current income tax to tax expense ratio is between 0.8 and 1.2, and zero otherwise. A ratio closer to one suggests a higher degree of conformity between tax income and book income and a larger expected reduction in tax costs.

The final measure of determinant is firm life cycle. Following Anthony and Ramesh (1992) and Collins et al. (2014), I construct a composite life cycle score (*LIFE_CYCLE*) based on four firm characteristics, including firm size (*SIZE*), firm age (*AGE*), capital expenditures (*CAPEX*), and sales growth (*SALES_GR*).[36] In particular, a Z-score is

---

[34] Three periods of high auditor litigation risk have been identified by the extant literature, which include 1967 to 1975, 1983 to 1995 and 2001 to 2005. See for example (Basu, 1997; García Lara et al., 2009; Holthausen & Watts, 2001).

[35] I follow Qiang (2007) and measure market share based on sales revenue instead of other firm size variables such as total assets or market value since firm size is likely to proxy for many other firm characteristics. Moreover, the number of firms in an industry is controlled for as there is a possibility that firms in an industry with fewer firms have larger market share by construction but may not be easily noticed.

[36] Besides the composite life-cycle score (*LIFE_CYCLE*), I also examine the association between the four life-cycle variables and CFO asymmetry *SIZE*, *AGE*, *CAPEX* and *SALES_GR*. Moreover, I also consider the confounding effect of firm size on CFO asymmetry by constructing an alternative composite life-cycle score

calculated for each variable by subtracting its mean and dividing by its standard deviation. The composite life cycle score is derived as follows:

$$LIFE\_CYCLE_{i,t} = Z\_SALE\_GR_{\mathrm{i,t}} - Z\_AGE_{\mathrm{i,t}} + Z\_CAPEX_{\mathrm{i,t}} - Z\_SIZE_{\mathrm{i,t}} \quad (1)$$

where *SALE_GR* is the two-year growth in sales revenue, *AGE* is the number of years of the firm appearing in the CRSP database, *CAPEX* is the capital expenditure scaled by total assets, and *SIZE* is the log of lagged total assets. The composite score (*LIFE_CYCLE*) is then ranked into quintiles in reverse order so that the lower quintiles reflect a later life cycle stage (i.e. maturity) and the higher quintiles reflect an earlier life cycle stage (i.e. growth).

3.3.4 Regression specifications

Consistent with prior research of CFO asymmetry (e.g. Banker et al., 2016; Collins et al., 2014; Steele, 2011), I use the Basu (1997) piece-wise linear model to examine CFO asymmetric timeliness. The regression model is presented as follows:

$$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \varepsilon_{i,t} \quad (2)$$

where Y represents the dependent variables such as CFO, earnings or accruals. RET is the annual stock return of the firm. DRET is a dummy variable that equals one if RET is negative, and zero otherwise. The coefficient of interest is α_3, which captures the incremental timeliness of dependent variables to bad news versus good news. A positive and significant α_3 thus indicates the presence of asymmetric timeliness.

To test the cost stickiness explanation (**H**1), I employ an extension of the Basu (1997) model introduced by Banker et al. (2016) as below:

$$Y_{i,t}= \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \beta_1 DSALES_{i,t} + \beta_2 SALESCHG_{i,t}$$
$$+ \beta_3 DSALES_{i,t} * SALESCHG_{i,t} + \varepsilon_{i,t} \quad (3)$$

(*LIFE_CYCLE1*) that does not include the Z-score of *SIZE* in construction. The results are not sensitive to these alternative specifications. For example, I find that *SIZE*, *AGE* and *CAPEX* are important determinants of CFO asymmetry, consistent with Collins et al. (2014).

All variables are as previously defined. *SALES* are used to control for fixed and variable costs. *DSALES* and *SALESCHG* are included to account for the effects of the directions and the magnitude of sales changes, respectively. If cost stickiness can explain a portion of CFO asymmetry, a significant and positive β_3 is expected.

I also adopt an extended version of the Basu (1997) model to test the explanation of conservatism demands (**H**2) and firm life cycle (**H**3). In particular, I add the conservatism demand variable or the life cycle score as the independent variable into Equation (2) and interact it with each of the independent variables in Equation (2). The regression model is presented as below:

$$
\begin{aligned}
Y_{i,t} = {} & \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \alpha_4\, DETER\_VAR_{i,t} \\
& + \alpha_5\, DETER\_VAR_{i,t} * DRET_{i,t} + \alpha_6\, DETER\_VAR_{i,t} * RET_{it} \\
& + \alpha_7\, DETER\_VAR_{i,t} * DRET_{i,t} * RET_{i,t} + \varepsilon_{it} \qquad (4)
\end{aligned}
$$

where DETER_VAR represents one of the four external demand variables or the composite life cycle score (*LIFE_CYCLE*). A significant α_7 with expected signs indicates that CFO asymmetric timeliness is affected by conservatism demand or firm life cycle.

Finally, to examine the product pricing explanation (**H**4), I follow Steele (2011) and use three cash flow variables as the dependent variable (*Y*) in Equation (2). Cash proceeds from sales (*CASH_SALE*) are measured as total sales less the change in accounts receivables, deflated by the lagged market value of equity. Cash payments for inventory (*CASH_INV*) are the cost of goods sold plus the change in inventory less the change in accounts payable, deflated by the lagged market value of equity. I also use gross cash flows from selling activities (*CASH_DSALE*) to test the net effects of the above two variables, measured as the difference between cash proceeds from sales (*CASH_SALE*) and cash payments for inventory

(*CASH_INV*). According to **H**4, I expect a positive and significant α_3 when the dependent variable is *CASH_SALE* or *CASH_DSALE*.

3.3.5 Descriptive statistics

Panel A of Table 3.1 shows the descriptive statistics for the variables used in Equation (3). The results indicate that these statistics are comparable to those reported in prior research (e.g. Ball et al., 2000; Banker et al., 2016; Collins et al., 2014; García Lara et al., 2009; Steele, 2011). On average, earnings equal −1.1% of lagged market value (the median is 4.2%). Earnings are negatively skewed, consistent with the presence of conditional conservatism. Stock returns are 11.3% on average and are negative (*DRET* = 1) for 46% of the sample. Panel B shows descriptive statistics for the variables used in Equation (3) including *SALES*, *DSALES*, and *SALESCHG*. Specifically, the mean value of *DSALES* is 0.300, similar to the 0.258 reported by Steele (2011). The results indicate that observations of sales decreases (*DSALES* = 1) are 30.0% of the sample.

Panel C of Table 3.1 shows descriptive statistics for the variables used to test the conservatism demand explanation. They are comparable to prior studies (García Lara et al., 2009; Qiang, 2007). The mean of *CtrCost_Dt* is close to 1 (0.931), indicating that on average the sample firms have a high level of private debt and thus strong debt governance. Also, 38.2% of the sample firms have high litigation risk (*LitiCost*). The sample firms tend to have relatively low expected regulatory costs (the mean value of *ReguCost* is 0.266) and low tax-book conformity (*TaxCost*), with a mean of 0.250.

Panel D shows the statistics for the life cycle variables. On average, firms have 4.5 years of age. The positive mean (0.510) and median (0.170) of *SALES_GR* indicate that a significant portion of sample firms have experienced an increase in sales during the sample period. Panel E reports the variables used in testing **H**4. As expected, the mean value of *CASH_SALE* (1.877) is larger than that for *CASH_INV* (1.277). *CASH_DSALE* has a positive mean of 0.491, indicating that most sample firms have positive cash flows from selling activities during the sample period.

[Insert Table 3.1 here]

3.4 Empirical Results

3.4.1 Empirical results for the existence of CFO asymmetric timeliness

I first re-examine the presence of CFO asymmetry. Table 3.2 columns (1)-(3) present the results when operating cash flows (*CFO*), earnings (*EARN*) and accruals (*ACCRUAL*) are used as the dependent variable, respectively. The results are consistent with prior studies. The coefficient of the interaction term *DRET* * *RET* (α_3) is positive and significant in all three specifications. The results in column (1) confirm that cash flows exhibit asymmetric timeliness (coefficient = 0.129; t = 7.03). Moreover, the significantly negative coefficient on *DRET* (coefficient = −0.012; t = −3.15) indicates that firms with bad economic news would, on average, have a lower level of CFO than firms with good news.

Both earnings and accruals exhibit asymmetric timeliness, which can be seen in columns (2) and (3). The coefficients of α_3 are significantly positive for both earnings (coefficient = 0.279; t = 16.90) and accruals (coefficient = 0.148; t = 8.58). Comparing the estimates of α_3 in columns (1)-(3) reveals that the coefficient α_3 for earnings (0.279) is the highest among three estimates. This outcome is by construction. Given that earnings are equal to the sum of accruals and CFO, the coefficients in column (2) should be equal to the sum of the coefficients in columns (1) and (3). The coefficients in Table 2 show a small difference due to different sample compositions for each regression.

[Insert Table 3.2 here]

3.4.2 Empirical results for different explanations for CFO asymmetric timeliness

Results for cost stickiness

The results regarding the cost stickiness explanation (**H**1) are reported in Table 3.3. Indeed, cost stickiness affects operating cash flows to be more sensitive to bad economic news (as measured by sales). The coefficient of *DSALES * SALESCHG* is positive (0.333), with a significant *t*-statistic of 20.97. The coefficient of *DRET * RET* remains positive and significant (coefficient = 0.109; t = 9.17), indicating that cost stickiness cannot fully explain the degree of CFO asymmetric timeliness.

[Insert Table 3.3 here]

Results for demands for conservatism

The results for the explanation of conservatism demands are shown in Table 3.4. For brevity, I only report the estimated coefficients of *DRET * RET* (α_3) and *DETER_VAR * DRET * RET* (α_7).

I find evidence supporting the debt contracting demand explanation (**H**2a). The coefficient of *CtrCost_Dt * DRET * RET* is positive and significant (coefficient = 0.058; t = 2.23). For *EQUITY_ISSUE*, which captures equity contracting demand, the results confirm H2a that equity contracting demand induces CFO asymmetric timeliness. The coefficient on *EQUITY_ISSUE * DRET * RET* is significantly positive. Collectively, the results in Table 3.4 support that both debt and equity contracting demands induce CFO asymmetric timeliness.

In regard to the results for the litigation demand, consistent evidence exists for a positive association between auditor litigation risk and CFO asymmetry, supporting H2b. Moreover, **H**2c predicts a positive association between regulatory demand (*ReguCost*) and CFO asymmetry, with the expected sign for α_7 being positive. Contrary to the expectation, I find the coefficient α_7 to be significantly negative. This suggests that firms facing high regulatory demand tend to reduce CFO asymmetry. Therefore, CFO asymmetric timeliness cannot be explained by the regulatory demand for conservatism.

Finally, the regression results in Table 3.4 support **H**2d regarding the taxation demand, suggesting a positive association between the taxation demand (*TaxCost*) and CFO asymmetry. The coefficient α_7 is positive (coefficient = 0.038; t = 3.13) and significant.

[Insert Table 3.4 here]

Results for life cycle and product pricing

Table 3.5 presents the results for the examination of **H**3 regarding the firm life cycle explanation. The results confirm the prediction of H3 that firms in earlier life cycle stages have higher CFO asymmetric timeliness. The estimated coefficient of α_7 is positive (coefficient = 0.241) and significant (t = 8.86). The magnitude of the estimated coefficient in the study is similar to that of Collins *et al.* (2014), which reports an estimated coefficient of α_7 equal to 0.215 (t = 14.20).

The analysis of **H**4 regarding the product pricing explanation is based on Equation (3), using the three cash flows variables, namely cash proceeds from sales (*CASH_SALE*), cash payments for inventory (*CASH_INV*) and gross cash proceeds from selling activities (*CASH_DSALE*). The results are presented in Table 3.5. The incremental coefficient (α_3) for *DRET * RET* is found to be negative and insignificant for *CASH_SALE* and *CASH_DSALE*. In particular, the coefficient α_3 is −0.131 (t = −0.74) for *CASH_SALE*, −0.231 (t = −2.06) for *CASH_INV* and −0.047 (t = −1.07) for *CASH_DSALE*. Thus, the results do not support the product pricing explanation (H4), which predicts a positive and significant α_3 when the dependent variable is *CASH_SALE* and *CASH_DSALE*.[37]

[Insert Table 3.5 here]

3.4.3 Empirical results for jointly testing different explanations

In the above analyses, I have identified three explanations that can explain a certain degree of CFO asymmetric timeliness, including cost stickiness, the demand for conservatism and firm life cycle. Panel A of Table 3.6 presents a summary of the regression results for the above analyses. However, it is unclear whether any of these explanations is predominant in explaining CFO asymmetry.

Table 3.7 reports the results of jointly testing the combined effects of cost stickiness, the demands for conservatism and firm life cycle, and a summary of the results is presented in Panel B of Table 6. For the effects of cost stickiness and firm life cycle, the results are consistent with those reported and support both explanations with significantly positive coefficients for both of the two interaction terms *LIFE_CYCLE* * *RET* * *DRET* and *DSALES* * *SALESCHG* in all specifications. After accounting for cost stickiness and life cycle, I find that the demand for conservatism with regard to equity contracting and taxation continue to be important determinants of CFO asymmetry.

[37] The results in Table 3.6 are surprisingly inconsistent with those reported in Steele (2011). Steele (2011) shows evidence supporting his prediction that the incremental coefficient of negative returns (α_3) is higher for *CASH_SALE* (coefficient = 0.488; *p*-value = 0.043) than for *CASH_INV* (coefficient = 0.372; *p*-value = 0.036), indicating that cash inflows from sales are more asymmetrically sensitive to bad economic news than cash outflows for inventory. To further support the product pricing explanation, Steele (2011) also documents a positive incremental coefficient of negative stock returns ($\alpha_3 = 0.116$; *p*-value < 0.01) when gross cash proceeds from selling activities (*CASH_DSALE*) is the dependent variable. The difference in results might be due to different sample selection criteria imposed between Steele (2011) and this study. In fact, the explanatory power of each regression reported in Table 3.5 ranges from 1.1% to 2.5%, consistent with those reported in Steele (2011).

In addition, compared to the explanatory power when testing the explanations separately, the higher explanatory power of the regression models implies that these explanations in combination can better explain CFO asymmetry. However, it is important to note that the coefficients of *DRET * RET* remain positive and significant in almost all specifications, suggesting that all three explanations together cannot fully explain the presence of cash flow asymmetry.

[Insert Table 3.6 and 3.7 here]

3.4.4 Different explanations for CFO versus accrual asymmetric timeliness

This study has so far focused on CFO asymmetric timeliness and remained silent on the accrual asymmetric timeliness. This section compares different explanations for these two types of asymmetric timeliness. Collins et al. (2014) suggest that CFO asymmetric timeliness may capture several biases identified in prior studies such as those sourced from scale-related loss effects (Patatoukas and Thomas 2011) and expected return/expected earnings covariance (Ball et al. 2013a). They recommend removing the cash flow component from earnings and using accrual asymmetric timeliness instead. In addition, Qiang (2007) and García Lara et al. (2009) examine economic determinants of conditional conservatism using earnings-based measures. Although both studies find that contracting and litigation induce earnings asymmetric timeliness, they report mixed evidence for regulation and taxation demands. García Lara et al. (2009) show that taxation and regulation drive conditional conservatism, while Qiang (2007) find no evidence. The removal of CFO asymmetric timeliness suggested in Collins et al. (2014) and the mixed evidence in Qiang (2007) and García Lara et al. (2009) thus raise a question about the relative importance of difference explanations in explaning CFO and accrual asymmetric timeliness.

Table 3.8 compares different explanations for cash flow *and* accruals asymmetric timeliness. I find that litigation explains both CFO and accruals asymmetric timeliness, consistent with Qiang (2007) and García Lara et al. (2009). However, the demands for debt and equity contracting only explain CFO asymmetric timeliness rather than the accrual-based component. This finding is in line with the suggestion of Collins et al. (2014) that researchers should consider and examine cash flow *and* accruals asymmetric timeliness seperately in tests of conditional conservatism. However, it also calls into question previous studies that predominantly rely on earnings-based measures in testing asymmetric timeliness. Importantly, I find that regulation drives accruals asymmetric timeliness but leads to a lower degree of CFO asymmetric timeliness. Taxation is found to induce CFO asymmetric timeliness but lowers accruals asymmetric timeliness. The results provide a possible explanation for the mixed evidence in Qiang (2007) and García Lara et al. (2009) that the sign of the findings depends on the relative importance of the CFO and accrual component in the sample being examined. Finally, I find that cost stickiness induces both forms of asymmetric timeliness, while firm life cycle can only explain cash flow rather than accruals asymmetric timeliness. Overall, the results in Table 8 confirm the robustness of cost stickiness and litigation in explaining conditional conservatism, but they show that the explanations based on firm life cycle, contracting and taxation only apply to cash flow asymmetric timeliness.

3.5 Conclusion

In the last decade, investors and the public have attached increasing significance to reported CFO. In contrast, the fact that CFO exhibits asymmetric timeliness has attracted very limited attention since being documented by Basu (1997), and the factors driving CFO asymmetry have been largely unexplored to date. To fill this gap, this study proposes two new explanations for CFO asymmetry and examines the existence and determinants of CFO asymmetry.

I find consistent evidence that cost stickiness affects CFO asymmetry. Sticky cost behaviour tends to drive a higher proportion of asymmetric timeliness in CFO. I also find evidence supporting the explanation of conservatism demands. The degree of CFO asymmetry is found to be positively associated with the demand for conservatism relating to equity contracting, litigation and taxation. In addition, the empirical evidence supports the firm life cycle explanation (Collins et al., 2014), but it is inconsistent with the product pricing explanation (Steele, 2011). The results hold when these explanations of CFO asymmetry are tested jointly. I find that these explanations in combination can better elucidate CFO asymmetry, but they cannot fully unravel the degree of CFO asymmetric timeliness, which calls for future research.

Appendix 2: Variable Measurement

Variable	Measurement (Compustat item)
Panel A: Dependent variables and other key variables	
CFO	Operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity (CSHO * PRCC_F)
EARN	Net income before extraordinary items (IB), scaled by lagged market value of equity (CSHO * PRCC_F), as in Khan and Watts (2009)
ACCRUAL	Accruals from the statement of cash flows, deflated by the lagged market value of equity. Accruals from the statement of cash flows = EARN − CFO
RET	Fiscal year returns measured by 12-month buy-and-hold returns from fiscal year-end t−1 to fiscal year-end t, as in Collins et al. (2014)
DRET	A dummy variable set to one if stock returns RET are negative, and zero otherwise
Panel B: Explanatory variables for firm life cycle explanation	
SIZE	The log of lagged total assets (AT), as in Collins et al. (2014)
AGE	The number of years since the first year that a firm's data are available on CRSP, as in Collins et al. (2014)
SALES_GR	The two-year growth in sales revenue, measured by Sales revenue in year t/Sales revenue in year t−2, as in Collins et al. (2014)
CAPEX	The capital expenditure (CAPX + XRD) divided by total assets (AT), as in Collins et al. (2014)
LIFE_CYCLE	The combined life cycle score = Z_SALE_GR − Z_AGE + Z_CAPEX − Z_SIZE. Z-score for each variable is calculated by subtracting its mean and dividing the result by its standard deviation, as in Collins et al. (2014)
Panel C: Explanatory variables for product pricing explanation	
CASH_SALE	Cash inflows from sales, calculated as sales (SALE) less the change in accounts receivable (RECT) before the allowance for doubtful accounts (RECD), which is then deflated by the lagged market value of equity (CSHO * PRCC_F), as in Steele (2011).
CASH_INV	Cash outflows for inventory, calculated as cost of goods sold (COGS) plus the change in inventory (INVT) less the change in accounts payable (AP), which is then deflated by the lagged market value of equity (CSHO * PRCC_F), as in Steele (2011).
CASH_DSALE	Gross cash flows from selling activities, calculated as CASH_SALE less CASH_INV, both deflated by the lagged market value of equity, as in Steele (2011).
Panel C: Explanatory variables for cost stickiness explanation	
DSALES	A dummy variable set to one when total sales revenue (SALE) decreased from year t−1 to year t, and zero otherwise.
SALESCHG	The percentage change in sales revenue (SALE) from year t−1 to year t.
Panel D: Explanatory variables for demand for conservatism explanations	
CtrCost_Dt	Expected costs imposed by debt contracting purposes. Private long-term debt/total long-term debt. Private long-term debt = Debt-Notes (DN) + Debt-Capitalized Lease Obligations (DCLO) + Other Long-term Debt (DLTO).

	Total long-term debt = Debt-Debentures (DD) + Debt-Notes (DN) + Debt-Capitalized Lease Obligations (DCLO) + Other Long-term Debt (DLTO), as in Qiang (2007).
EQUITY_ISSUE	Firm's sale of common and preferred stock (SSTK) for fiscal year *t* scaled by the lagged market value of equity (CSHO * PRCC_F)
LitiCost	Expected auditor litigation costs, measured by an indicator variable that is set to one if the company's auditor is a big auditing firm (AU) and if the fiscal year is in a high auditor litigation period, and zero otherwise. Following Basu (1997) and Holthausen and Watts (2001), García Lara, García Osma, Penalva (2009) take the three periods comprising 1967 to 1975, 1983 to 1995, and 2001 to 2005 as having high auditor litigation risk.
ReguCost	Expected costs imposed via accounting regulation, measured by an indicator variable that is set to one if sales (SALE) deflated by (industry total sales/the number of firms in the industry) is in the top quartile, and zero otherwise; industry is based on two-digit SIC code, as in Qiang (2007).
TaxCost	Expected reduction in tax costs. An indicator variable set to one if the average over three years (t to $t-2$) of the ratio current income tax over tax expense is between 0.8 and 1.2, and zero otherwise, as in Qiang (2007) and García Lara, García Osma, Penalva (2009).

References

Anderson, M. C., Banker, R. D., & Janakiraman, S. N. (2003). Are Selling, General, and Administrative Costs "Sticky"? *Journal of Accounting Research, 41*(1), 47-63.

Anthony, J. H., & Ramesh, K. (1992). Association between accounting performance measures and stock prices: A test of the life cycle hypothesis. *Journal of accounting and economics, 15*(2-3), 203-227.

Armstrong, C. S., Guay, W. R., & Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of accounting and economics, 50*(2-3), 179-234.

Badertscher, B. A., Phillips, J. D., Pincus, M., & Rego, S. O. (2009). Earnings management strategies and the trade-off between tax benefits and detection risk: To conform or not to conform? *The Accounting Review, 84*(1), 63-97.

Ball, R., Kothari, S. P., & Nikolaev, V. V. (2013). Econometrics of the Basu Asymmetric Timeliness Coefficient and Accounting Conservatism. *Journal of Accounting Research, 51*(5), 1071-1097.

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

Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies, 13*(2-3), 168-205.

Banker, R. D., Basu, S., Byzalov, D., & Chen, J. Y. (2016). The confounding effect of cost stickiness on conservatism estimates. *Journal of accounting and economics, 61*(1), 203-220.

Banker, R. D., Byzalov, D., & Chen, L. T. (2013). Employment protection legislation, adjustment costs and cross-country differences in cost behavior. *Journal of accounting and economics, 55*(1), 111-127.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings 1. *Journal of Accounting and Economics, 24*(1), 3-37.

Beaver, W. H., & Ryan, S. G. (2005). Conditional and Unconditional Conservatism:Concepts and Modeling. *Review of Accounting Studies, 10*(2-3), 269-309.

Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1-24.

Begley, J., & Freedman, R. (2004). The changing role of accounting numbers in public lending agreements. *Accounting Horizons, 18*(2), 81-96.

Blinder, A., Canetti, E. R., Lebow, D. E., & Rudd, J. B. (1998). *Asking about prices: a new approach to understanding price stickiness*: Russell Sage Foundation.

Bushman, R. M., & Piotroski, J. D. (2006). Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of accounting and economics, 42*(1), 107-148.

Bushman, R. M., Piotroski, J. D., & Smith, A. J. (2011). Capital allocation and timely accounting recognition of economic losses. *Journal of Business Finance & Accounting, 38*(1- 2), 1-33.

Collins, D. W., Hribar, P., & Tian, X. S. (2014). Cash flow asymmetry: Causes and implications for conditional conservatism research. *Journal of accounting and economics, 58*(2-3), 173-200.

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics, 50*(2), 344-401.

Dichev, I. D., & Skinner, D. J. (2002). Large–sample evidence on the debt covenant hypothesis. *Journal of Accounting Research, 40*(4), 1091-1123.

Dickinson, V. (2011). Cash flow patterns as a proxy for firm life cycle. *The Accounting Review, 86*(6), 1969-1994.

Dietrich, J. R., Muller, K., III, & Riedl, E. (2007). Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies*, *12*(1), 95-124.

Francis, J. R., Maydew, E. L., & Sparks, H. C. (1999). The role of Big 6 auditors in the credible reporting of accruals. *Auditing: a Journal of Practice & theory, 18*(2), 17-34.

García Lara, J. M., García Osma, B., & Penalva, F. (2009). The Economic Determinants of Conditional Conservatism. *Journal of Business Finance & Accounting, 36*(3/4), 336-372.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate Governance and Equity Prices. *The Quarterly Journal of Economics*, 107-155.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of accounting and economics*, *40*(1), 3-73.

Guay, W., & Verrecchia, R. (2006). Discussion of an economic framework for conservative accounting and Bushman and Piotroski (2006). *Journal of Accounting and Economics*, *42*(1–2), 149-165.

Gul, F. A., Tsui, J., & Dhaliwal, D. S. (2006). Non- audit services, auditor quality and the value relevance of earnings. *Accounting & Finance, 46*(5), 797-817.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics, 31*(1–3), 405-440.

Holthausen, R. W., & Watts, R. L. (2001). The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics, 31*(1), 3-75.

Hribar, P., & Collins, D. W. (2002). Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research, 40*(1), 105-134.

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

Jones, F. L., & Raghunandan, K. (1998). Client risk and recent changes in the market for audit services. *Journal of Accounting and Public Policy, 17*(2), 169-181.

Khan, M., & Watts, R. L. (2009). Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of accounting and economics, 48*(2-3), 132-150.

Khurana, I. K., & Raman, K. K. (2004). Litigation Risk and the Financial Reporting Credibility of Big 4 versus Non-Big 4 Audits: Evidence from Anglo-American Countries. *Accounting Review, 79*(2), 473-495.

Lawrence, A., Sloan, R., & Sun, Y. (2013). Non-discretionary conservatism: Evidence and implications. *Journal of Accounting and Economics, 56*(2–3, Supplement 1), 112-133.

Lundholm, R., & Sloan, R. (2012). *Equity Valuation and Analysis w/eVal*: New York: McGraw-Hill/Irwin.

Okun, A. M. (1981). *Prices and quantities: A macroeconomic analysis*: Brookings Institution Press.

Palmrose, Z.-V. (1988). An Analysis of Auditor Litigation and Audit Service Quality. *Accounting Review, 63*(1), 55.

Patatoukas, P. N., & Thomas, J. K. (2011). More evidence of bias in the differential timeliness measure of conditional conservatism. *The Accounting Review, 86*(5), 1765-1793.

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.

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of accounting and economics, 42*(3), 335-370.

Steele, L. B. (2011). *On the Asymmetric Timeliness of Operating Cash Flows. Unpublished Working Paper. Eller College of Management, University of Arizona.*

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), 287-301.

Watts, R. L., & Zimmerman, J. L. (1986). Positive accounting theory.

Weiss, D. (2010). Cost behavior and analysts' earnings forecasts. *The Accounting Review, 85*(4), 1441-1471.

Table 3.1

Descriptive Statistics

The table presents descriptive statistics for variables used to test the hypotheses.

Panel A: Dependent variables						
	N	Mean	Std Dev	P25	Median	P75
RET	143942	0.113	0.556	-0.235	0.042	0.337
DRET	146878	0.458	0.498	0.000	0.000	1.000
EARN	173624	-0.011	0.209	-0.039	0.042	0.082
CFO	161988	0.090	0.209	0.004	0.080	0.161
ACCRUAL	161989	-0.109	0.247	-0.143	-0.052	-0.007

Panel B: Explanatory variables for the cost stickiness explanation						
	N	Mean	Std Dev	P25	Median	P75
SALES	173625	1.768	2.449	0.397	0.935	2.068
DSALES	198993	0.300	0.458	0.000	0.000	1.000
SALESCHG	185617	0.510	1.492	-0.026	0.170	0.507

Panel C: Explanatory variables for the demand for conservatism explanations						
	N	Mean	Std Dev	P25	Median	P75
CtrCost_Dt	154669	0.931	0.203	1.000	1.000	1.000
EQUITY_ISSUE	168432	0.500	0.500	0.000	0.000	1.000
LitiCost	213976	0.382	0.486	0.000	0.000	1.000
ReguCost	218372	0.266	0.442	0.000	0.000	1.000
TaxCost	107309	0.250	0.433	0.000	0.000	0.000

Panel D: Explanatory variables for the firm life cycle explanation						
	N	Mean	Std Dev	P25	Median	P75
SIZE	214007	5.414	2.428	3.612	5.308	7.151
AGE	145193	4.519	1.208	3.784	4.691	5.421
SALES_GR	185617	0.510	1.492	-0.026	0.170	0.507
CAPEX	211024	0.095	0.107	0.022	0.061	0.127
LIFE_CYCLE	132564	-0.224	1.568	-1.319	-0.255	0.841

Panel E: Explanatory variables for the product pricing explanation						
	N	Mean	Std Dev	P25	Median	P75
CASH_SALE	113430	1.877	2.611	0.427	0.990	2.192
CASH_INV	168063	1.277	1.992	0.185	0.568	1.475
CASH_DSALE	111453	0.491	0.636	0.147	0.306	0.598

CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity; NCFO is normal CFO estimated from the Roychowdhury (2006) model; ABCFO is abnormal operating cash flows estimated from the Roychowdhury (2006) model, and reported as percentages of lagged total assets/market value; EARN is net income before extraordinary items (IB), scaled by lagged market value of equity (CSHO * PRCC_F); ACCRUAL is accruals from the statement of cash flows, deflated by the lagged market value of equity (CSHO * PRCC_F) where accruals from the statement of cash flows = EARN – CFO; RET is fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise; SALES is sales revenue (SALE), scaled by the lagged market value of equity (CSHO * PRCC_F); DSALES is a dummy variable set to one when total sales revenue (SALE) decreased from year t-1 to year t, and zero otherwise; SALESCHG is the percentage change in sales revenue (SALE) from year t-1 to year t; CtrCost_Dt is expected costs imposed by debt contracting purposes, equal to private long-term debt/total long-term debt where private long-term debt = debt-notes (DN) + debt-capitalized lease obligations (DCLO) + other long-term debt (DLTO), and total long-term debt = debt-debentures (DD) + debt-notes (DN) + debt-capitalized lease obligations (DCLO) + other long-term debt (DLTO); GIM is GIM Index, a measure proposed by Gompers, Ishii and Metrick (2003) as a proxy for the strength of corporate governance; EQUITY_ISSUE is firm's sale of common and preferred stock (SSTK) for fiscal year t scaled by the lagged market value of equity (CSHO * PRCC_F); LitiCost is an indicator variable set to one if the company's auditor is a big auditing firm (AU) and if the fiscal year is in a high auditor litigation period; and 0 otherwise. ReguCost is an indicator variable that equals 1 if sales (SALE) deflated by (industry total sales / the number of firms in the industry) is of top quartile, and 0 otherwise with industry based on two-digit SIC code; TaxCost is an indicator variable set to one if the average over three years (t to t-2) of the ratio current income tax over tax expense is between 0.8 and 1.2, and zero otherwise. SIZE is the log of lagged total assets (AT); AGE is the number of years since the first year a firm's data is available on CRSP; SALES_GR is the two-year growth in sales revenue, measured by Sales revenue in year t/Sales revenue in year t-2; CAPEX is the capital expenditure (CAPX + XRD) divided by total assets (AT); LIFE_CYCLE is the combined life-cycle score = Z_SALE_GR – Z_AGE + Z_CAPEX – Z_SIZE; CASH_SALE is cash inflows from sales, calculated as sales (SALE) less the change in accounts receivable (RECT) before the allowance for doubtful accounts (RECD), which is then deflated by the lagged market value of equity (CSHO * PRCC_F); CASH_INV is cash outflows for inventory, calculated as cost of goods sold (COGS) plus the change in inventory (INVT) less the change in accounts payable (AP), which is then deflated by the lagged market value of equity (CSHO * PRCC_F); CASH_DSALE is gross cash flows from selling activities, calculated as CASH_SALE less CASH_INV, both deflated by the lagged market value of equity. All continuous variables are truncated at the top and bottom 1%.

Table 3.2

Regression results for the existence of CFO asymmetric timeliness

This table presents regression results of the existence of CFO asymmetric timeliness in U.S firms.

$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \varepsilon_{i,t}$

CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity; EARN is net income before extraordinary items (IB), scaled by lagged market value of equity (CSHO * PRCC_F); ACCRUAL is accruals from the statement of cash flows, deflated by the lagged market value of equity (CSHO * PRCC_F). Accruals from the statement of cash flows = EARN – CFO; RET is fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise; Figures in parentheses are *t*-statistics calculated using standard errors corrected for clustering by firm and year. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

	(1)	(2)	(3)
Dependent variables	CFO	EARN	ACCRUAL
Constant	0.112***	0.042***	-0.074***
	(28.65)	(15.73)	(-14.86)
DRET	-0.012***	-0.008*	0.001
	(-3.15)	(-1.72)	(0.32)
RET	0.026***	-0.005	-0.035***
	(2.59)	(-0.72)	(-3.13)
DRET * RET	0.129***	0.279***	0.148***
	(7.03)	(16.90)	(8.58)
Observations	124,158	132,204	124,137
Adj. R^2	0.050	0.105	0.010

Table 3.3

Effect of cost stickiness on CFO asymmetric timeliness

This table presents regression results of the effects of cost stickiness on CFO asymmetric timeliness.

$$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \beta_1 DSALES_{i,t} + \beta_2 SALESCHG_{i,t} + \beta_3 DSALES_{i,t} * SALESCHG_{i,t} + \varepsilon_{i,t}$$

CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity; RET is fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise; DSALES is a dummy variable set to one when total sales revenue (SALE) decreased from year t-1 to year t, and zero otherwise; SALESCHG is the percentage change in sales revenue (SALE) from year t-1 to year t. Figures in parentheses are *t*-statistics calculated using standard errors corrected for clustering by firm and year. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

	(1)
Dependent variables	CFO
Constant	0.069***
	(21.88)
DRET	-0.014***
	(-4.77)
RET	0.032***
	(3.61)
DRET * RET	0.109***
	(9.17)
DSALES	0.027***
	(5.51)
SALES_CHG	-0.042***
	(-16.35)
DSALES * SALESCHG	0.333***
	(20.97)
Observations	120,733
Adj. R^2	0.088

Table 3.4

Effect of conservatism demand on CFO asymmetric timeliness

The table presents regression results of the effects of demands for conservatism on CFO asymmetric timeliness.

$$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \alpha_4\, DETER\_VAR_{i,t} + \alpha_5\, DETER\_VAR_{i,t} * DRET_{i,t} + \alpha_6\, DETER\_VAR_{i,t} * RET_{it} + \alpha_7\, DETER\_VAR_{i,t} * DRET_{i,t} * RET_{i,t} + \varepsilon_{it}$$

where CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity; RET is fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise. DETER_VAR is the conservatism demand variable. CtrCost_Dt is expected costs imposed by debt contracting purposes, equal to private long-term debt / total long-term debt where private long-term debt = debt-notes (DN) + debt-capitalized lease obligations (DCLO) + other long-term debt (DLTO), and total long-term debt = debt-debentures (DD) + debt-notes (DN) + debt-capitalized lease obligations (DCLO) + other long-term debt (DLTO); GIM is GIM Index, a measure proposed by Gompers, Ishii and Metrick (2003) as a proxy for the strength of corporate governance; EQUITY_ISSUE is firm's sale of common and preferred stock (SSTK) for fiscal year t scaled by the lagged market value of equity (CSHO * PRCC_F); LitiCost is an indicator variable set to one if the company's auditor is a big auditing firm (AU) and if the fiscal year is in a high auditor litigation period; and 0 otherwise. ReguCost is an indicator variable that equals 1 if sales (SALE) deflated by (industry total sales / the number of firms in the industry) is of top quartile, and 0 otherwise with industry based on two-digit SIC code; TaxCost is an indicator variable set to one if the average over three years (t to t-2) of the ratio current income tax over tax expense is between 0.8 and 1.2, and zero otherwise. Figures in parentheses are *t*-statistics calculated using standard errors corrected for clustering by firm and year. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

Dependent variables			Predicted Sign	(1) CFO
Debt contracting demand (CtrCost_Dt)	H2a	DRET*RET		0.044*
				(1.73)
		DETER_VAR*DRET*RET	(+)	0.058**
				(2.23)
Equity contracting demand (EQUITY_ISSUE)	H2a	DRET*RET		0.067***
				(10.03)
		DETER_VAR*DRET*RET	(+)	0.086***
				(9.90)
Litigation demand (LitiCost)	H2b	DRET*RET		0.116***
				(22.67)
		DETER_VAR*DRET*RET	(+)	0.030***
				(3.47)
Regulation cost (ReguCost)	H2c	DRET*RET		0.136***
				(28.19)
		DETER_VAR*DRET*RET	(+)	-0.151***
				(-16.48)
Taxation demand (TaxCost)	H2d	DRET*RET		0.079***
				(11.25)
		DETER_VAR*DRET*RET	(+)	0.038***
				(3.13)

Table 3.5

Effect of firm life cycle and product pricing on CFO asymmetric timeliness

This table presents regression results of the effects of firm life cycle and product pricing on CFO asymmetric timeliness. The regression model for testing firm life cycle is as follows:

$$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \alpha_4 LIFE\_CYCLE_{i,t} + \alpha_5 LIFE\_CYCLE_{i,t} * DRET_{i,t} + \alpha_6 LIFE\_CYCLE_{i,t} * RET_{it} + \alpha_7 LIFE\_CYCLE_{i,t} * DRET_{i,t} * RET_{i,t} + \varepsilon_{it}$$

CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity RET is fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise; LIFE_CYCLE is the combined life-cycle score = Z_SALE_GR – Z_AGE + Z_CAPEX – Z_SIZE.

The regression model for testing product pricing is as follows.

$$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \varepsilon_{i,t}$$

where the dependent variable Y is CASH_SALE, CASH_INV or CASH_DSALE. CASH_SALE is cash inflows from sales, calculated as sales (SALE) less the change in accounts receivable (RECT) before the allowance for doubtful accounts (RECD), which is then deflated by the lagged market value of equity (CSHO * PRCC_F); CASH_INV is cash outflows for inventory, calculated as cost of goods sold (COGS) plus the change in inventory (INVT) less the change in accounts payable (AP), which is then deflated by the lagged market value of equity (CSHO * PRCC_F); CASH_DSALE is gross cash flows from selling activities, calculated as CASH_SALE less CASH_INV, both deflated by the lagged market value of equity. Figures in parentheses are *t*-statistics calculated using standard errors corrected for clustering by firm and year. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test

	Firm life cycle	Product pricing	Product pricing	Product pricing
	(1)	(2)	(3)	(4)
Dependent variables	CFO	CASH_SALE	CASH_INV	CASH_DSALE
Constant	0.124***	1.667***	1.110***	0.429***
	(22.29)	(15.91)	(17.28)	(17.12)
DRET	0.005	0.148***	0.111***	0.041***
	(0.90)	(3.59)	(4.01)	(3.30)
RET	0.117***	0.645***	0.468***	0.196***
	(6.94)	(5.81)	(6.43)	(6.49)
DRET * RET	-0.086***	-0.131	-0.231**	-0.047
	(-3.83)	(-0.74)	(-2.06)	(-1.07)
LIFE_CYCLE	-0.055***			
	(-10.05)			
LIFE_CYCLE * DRET	-0.024***			
	(-3.07)			
LIFE_CYCLE * RET	-0.128***			
	(-6.75)			
LIFE_CYCLE * DRET * RET	0.241***			
	(8.86)			
Observations	119,245	91,945	126,907	90,409
Adj. R^2	0.093	0.015	0.011	0.025

Table 3.6

Summary of empirical results

This table presents a summary of the regression results for all analyses in this study. Figures in parentheses are the estimated coefficient for the corresponding explanation for CFO asymmetric timeliness. CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity;

Panel A: Results of testing explanations separately

Explanations	Hypothesis	Predicted Sign	CFO
Cost stickiness	H1	(+)	Support
<u>Conservatism demand</u>			
Debt contracting demand (CtrCost_Dt)	H2a	(+)	Support
Equity contracting demand (EQUITY_ISSUE)	H2a	(+)	Support
Litigation demand (LitiCost)	H2b	(+)	Support
Regulation cost (ReguCost)	H2c	(+)	No
Taxation demand (TaxCost)	H2d	(+)	Support
Firm life cycle	H3	(+)	Support
Product pricing	H4	(+)	No

Panel B: Results of testing three explanations jointly

Explanations	Hypothesis	Predicted Sign	CFO
Cost stickiness	H1	(+)	Support
<u>Conservatism demand</u>			
Debt contracting demand (CtrCost_Dt)	H2a	(+)	No
Equity contracting demand (EQUITY_ISSUE)	H2a	(+)	Support
Litigation demand (LitiCost)	H2b	(+)	No
Regulation cost (ReguCost)	H2c	(+)	No
Taxation demand (TaxCost)	H2d	(+)	Support
Firm life cycle	H3	(+)	Support

Table 3.7

Results for testing different explanations jointly

This table presents regression results of the combining effects of firm life cycle, cost stickiness and demand for conservatism on CFO asymmetric timeliness. Please refer to Appendix 2 for variable definitions. All continuous variables are truncated at the top and bottom 1%. Figures in parentheses are *t*-statistics calculated using standard errors corrected for clustering by firm and year. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

Dependent variables	Predicted Sign	CFO
Panel A: Debt contracting demand (CtrCost_Dr)		
CFO asymmetry	(+)	0.039
		(1.59)
Cost stickiness	(+)	0.262***
		(24.21)
Debt contracting demand	(+)	-0.013
		(-0.51)
Firm life cycle	(+)	0.059***
		(18.55)
Panel B: Equity contracting demand (EQUITY_ISSUE)		
CFO asymmetry	(+)	0.015**
		(2.30)
Cost stickiness	(+)	0.199***
		(23.59)
Equity contracting demand	(+)	0.041***
		(5.02)
Firm life cycle	(+)	0.033***
		(12.37)
Panel C: Litigation demand (LitiCost)		
CFO asymmetry	(+)	0.020***
		(3.94)
Cost stickiness	(+)	0.258***
		(30.50)
Litigation demand	(+)	0.008
		(0.93)
Firm life cycle	(+)	0.057***
		(21.27)
Panel D: Regulation demand (ReguCost)		
CFO asymmetry	(+)	0.035***
		(6.46)
Cost stickiness	(+)	0.260***
		(30.70)
Regulation demand	(+)	-0.038***
		(-3.43)
Firm life cycle	(+)	0.052***
		(15.74)
Panel E: Taxation demand (TaxCost)		
CFO asymmetry	(+)	0.051***
		(6.65)
Cost stickiness	(+)	0.247***
		(22.06)
Taxation demand	(+)	0.027**
		(2.32)
Firm life cycle	(+)	0.067***
		(14.98)

Table 3.8

Testing different explanations for CFO and accruals asymmetric timeliness

The table presents regression results of the effects of demands for conservatism on CFO and accruals asymmetric timeliness.

$Y_{i,t} = \alpha_0 + \alpha_1 DRET_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 DRET_{i,t} * RET_{i,t} + \alpha_4\ DETER\_VAR_{i,t} + \alpha_5\ DETER\_VAR_{i,t} * DRET_{i,t} + \alpha_6\ DETER\_VAR_{i,t} * RET_{it} + \alpha_7\ DETER\_VAR_{i,t} * DRET_{i,t} * RET_{i,t} + \varepsilon_{it}$

where CFO is operating cash flows taken directly from the statement of cash flows, measured by operating activities-net cash flow (OANCF), deflated by the lagged market value of equity; ACCRUAL is accruals from the statement of cash flows, deflated by the lagged market value of equity (CSHO * PRCC_F). RET is fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise. DETER_VAR is the conservatism demand variable. CtrCost_Dt is expected costs imposed by debt contracting purposes, equal to private long-term debt / total long-term debt where private long-term debt = debt-notes (DN) + debt-capitalized lease obligations (DCLO) + other long-term debt (DLTO), and total long-term debt = debt-debentures (DD) + debt-notes (DN) + debt-capitalized lease obligations (DCLO) + other long-term debt (DLTO); GIM is GIM Index, a measure proposed by Gompers, Ishii and Metrick (2003) as a proxy for the strength of corporate governance; EQUITY_ISSUE is firm's sale of common and preferred stock (SSTK) for fiscal year t scaled by the lagged market value of equity (CSHO * PRCC_F); LitiCost is an indicator variable set to one if the company's auditor is a big auditing firm (AU) and if the fiscal year is in a high auditor litigation period; and 0 otherwise. ReguCost is an indicator variable that equals 1 if sales (SALE) deflated by (industry total sales / the number of firms in the industry) is of top quartile, and 0 otherwise with industry based on two-digit SIC code; TaxCost is an indicator variable set to one if the average over three years (t to t-2) of the ratio current income tax over tax expense is between 0.8 and 1.2, and zero otherwise. Figures in parentheses are *t*-statistics calculated using standard errors corrected for clustering by firm and year. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

Dependent variables			Predicted Sign	(1) CFO	(2) ACCRUAL
Cost stickiness	H1	DSALES * SALESCHG	(+)	0.333***	0.033
				(20.97)	(1.52)
Debt contracting demand (CtrCost_Dt)	H2a	DETER_VAR*DRET*RET	(+)	0.058**	0.005
				(2.23)	(0.14)
Equity contracting demand (EQUITY_ISSUE)	H2a	DETER_VAR*DRET*RET	(+)	0.086***	-0.093***
				(9.90)	(-8.21)
Litigation demand (LitiCost)	H2b	DETER_VAR*DRET*RET	(+)	0.030***	0.049***
				(3.47)	(4.19)
Regulation cost (ReguCost)	H2c	DETER_VAR*DRET*RET	(+)	-0.151***	0.084***
				(-16.48)	(6.24)
Taxation demand (TaxCost)	H2d	DETER_VAR*DRET*RET	(+)	0.038***	-0.068***
				(3.13)	(-3.98)
Firm life cycle	H3	LIFE_CYCLE * DRET * RET	(+)	0.241***	-0.277***
				(8.86)	(-7.85)

CHAPTER FOUR

(Paper Three)

SECURITIES CLASS ACTIONS AND CONDITIONAL CONSERVATISM

4.1 Introduction

This study examines how the threat of litigation risk affects a firm's conservative financial reporting behaviours. Given that directors and managers do not always act in the best interest of shareholders (Adams & Ferreira, 2007; Laux, 2008; Taylor, 2010), the Securities Class Action Litigation in the United States has been perceived to function as a potentially useful mechanism to discipline opportunistic managers and controlling shareholders as it enables individual shareholders to form a class and sue managers and directors for their breaches of U.S. Securities and Exchange Commission (SEC) rules (Choi, 2004; Hopkins, 2017). This study uses a U.S. circuit court ruling as an exogenous shock to firm litigation risk and study how conservative financial reporting changes after the court's decision. In particular, the court ruling made it easier for public firms to defend against security class actions and therefore lowered directors' incentive to monitor financial reporting, which accordingly is reflected in a reduced degree of conditional conservatism in a firm's financial statements. I also explore whether the impact of reduced litigation risk on conservatism can be explained by other conservatism demands documented in prior studies (Watts 2003a, 2003b) and how it varies cross-sectionally with a range of firm-specific characteristics.

Following prior studies, this study uses conditional conservatism as a proxy for financial reporting quality. Accounting conservatism has long been perceived as an important attribute of accounting information in financial statements (Watts, 2003a; Watts & Zimmerman, 1986) as well as a corporate governance mechanism which can help constrain managerial opportunism and mitigate agency problems (Mora & Walker, 2015; Ruch & Taylor, 2015; Watts, 2003a, 2003b). Watts (2003a) identifies four main determinants of conservatism: contracting, litigation, taxation and regulation. In particular, Watts (2003a, 2003b) argues that the asymmetry in expected litigation costs creates incentives for managers and auditors to engage in conservative practices. This phenomenon stems from the probability of securities litigation for firms and auditors being much higher when earnings and net assets are overstated than when understated; therefore, the expected litigation costs are higher when companies overstate their earnings than when they understate earnings. Accordingly, there is an asymmetry in the loss function for firms and auditors caused by litigation risk. Extant research on litigation shows that lawsuits against firms and auditors are almost always related to situations in which earnings or net assets have been overstated (Kellogg, 1984) or the firm reports significant income-increasing abnormal accruals (Heninger, 2001).

In this context, both managers and auditors have incentives to ensure the reported values for earnings and net assets are conservative in order to mitigate the litigation risk. Accounting conservatism thus plays an important role in mitigating the negative effects of information asymmetries, reducing moral hazard, and other agency problems in addition to litigation and reputation risk. In support of this argument, Ettredge, Huang, and Zhang (2015) report that more conditionally conservative firms tend to have lower future shareholder litigation costs.

Several studies provide empirical evidence consistent with the monitoring role of litigation risk. Specifically, prior studies have used time periods, legal systems of different countries, cross-listing status of firms and strength of legal enforcement to explore how litigation risk affects accounting conservatism (e.g. Ball et al., 2000; Basu, 1997; Bushman & Piotroski, 2006; Holthausen & Watts, 2001; Huijgen & Lubberink, 2005; Jayaraman, 2012; Lang, Raedy, & Yetman, 2003). Moreover, previous literature also separately examines the association between accounting conservatism and litigation risk for different stakeholders of a firm such as auditors and managers (e.g. Chung & Wynn, 2008; Qiang, 2007).

However, the empirical findings presented to date have in best documented an association between accounting conservatism and litigation risk but failed to establish a causal link between litigation and conservatism. Accordingly, it is difficult to rule out the possibility that factors other than litigation demand contribute to variations in the degree of conservatism being observed. The difficulty in establishing such a causal link is largely due to the endogenous nature of the conservative reporting decisions. Using an approach distinct from prior studies, I extend this literature by treating the court ruling in Re: Silicon Graphics Inc. Securities Litigation (SGI) issued on July 2, 1999, by the U.S. Ninth Circuit Court of Appeals, as a proxy for an exogenous change in a firm's litigation risk. As the decision was arguably unexpected, well publicized, and significantly altered judicial outcomes, it helps overcome the endogeneity problem and allows identifying a clear causal link between litigation exposure and conservatism (Hopkins, 2017; Huang, Roychowdhury, & Sletten, 2018).

A difference-in-differences research design is employed to capture the differential post-ruling changes in financial reporting conservatism between firms headquartered in states within the Ninth Circuit (treatment firms) and firms headquartered in states outside the Ninth Circuit (control firms). To control for unobserved and other confounding factors that potentially affect the degree of accounting conservatism (Ball et al., 2013a; Ball, Kothari, & Nikolaev, 2013b; Khan & Watts, 2009), I include industry and year fixed effects in the regressions. Overall, I find that, in the period immediately following the court ruling, the degree of accounting conservatism decreases after the expected decline in the risk of securities class actions for treatment firms relative to control firms. Such decreases are significant both economically and statistically. The results indicate that, in response to the lowered litigation risk, directors and managers of firms subject to the court ruling decision tend to adopt less conservative financial reporting, suggesting that the threat of litigation risk plays an important role in monitoring a firm's financial reporting.

To provide further insights, I explore the extent to which the causal link between litigation and conservatism varies across a range of firm characteristics and other determinants of accounting conservatism to ensure that the main finding arises from a change in firms' reporting behaviour in response to the law change rather than other confounding events that directly impact conservatism. The results of these tests lend further support for the main hypothesis that the threat of securities class actions directly affects the degree of reporting conservatism. Specifically, I find that the causal link between litigation and conservatism cannot be explained by other demands for conservatism such as contracting, regulation and taxation. Additional analyses also reveal that the main result remains similar after controlling for confounding factors that potentially impact the observed causal relationship, including endogenous self-selection of states of headquarters, event windows, earnings management and the pressures from external monitors.

This paper makes three contributes to the literature. First, this study contributes to the understanding of the litigation demand for accounting conservatism by establishing a causal link between an *ex ante* litigation risk and accounting conservatism. Unlike the contracting demand for conservatism, the litigation explanation is a more recent phenomenon and has been considered as a significant driver of conservatism in recent years (García Lara et al., 2009). However, it is empirically difficult to establish the causal link between litigation risk and accounting conservatism due to the endogenous nature of conservative reporting decisions. The natural experiment utilised in this study significantly mitigates endogeneity concerns and enables me to attribute changes in the reduction in conservatism surrounding the court ruling decision to the changes in shareholder litigation risk. Second, by demonstrating that lowering a firm's litigation risk influences its financial reporting behaviour and, in particular, leads to a lower degree of conditional conservatism, this paper sheds light on the important role of the threat imposed by litigation risk in corporate governance. Specifically, this finding suggests that the threat of shareholder litigation can effectively discipline managerial reporting practices. As such, this evidence informs the debate about the role of securities class actions in regulating securities markets and in mitigating agency conflicts. Third, consistent with Bushman and Piotroski (2006), this study also provides additional support to the premise that judicial decisions and the associated litigation risk can have a significant impact on a company's financial reporting decisions.

The rest of the paper is organized as follows. Section 4.2 presents the review of relevant literature and discusses the development of the main hypothesis. Section 4.3 describes regression models, sample construction and variable measurements, while Section 4.4 presents descriptive statistics and the empirical results. Section 4.5 concludes.

4.2 Related Literature and Hypotheses Development

Towards developing the main hypothesis examined in this paper, in this section I initially review prior literature related to the definition and classification of accounting conservatism (Section 4.2.1) and the recent literature discussing the litigation demand explanation of accounting conservatism (Section 4.2.2). Section 4.2.3 presents the background of the exogenous shock to firms' litigation risk employed in this study. In Section 4.2.4, I develop the main hypothesis on the causal link between the litigation demand and accounting conservatism, based on evidence documented in prior studies regarding the association between the threat of litigation risk and accounting conservatism, and thereby provide insight into the research question.

4.2.1 Accounting conservatism

Accounting conservatism has long been perceived as an important property of accounting information in financial statements (Watts, 2003a; Watts & Zimmerman, 1986). For example, Sterling (1970) considers conservatism as the most influential principle of valuation in traditional accounting. The definitions of accounting conservatism, according to different accounting standards, are also convergent. The Financial Accounting Standards Board (FASB) describes accounting conservatism as "a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered" (FASB, 1980, p.10). Similarly, the International Accounting Standards Board (IASB) defines accounting conservatism in terms of "Prudence (being) the inclusion of a degree of caution in the exercise of the judgments needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities and expenses are not understated" (IASB, 2001, p.37).

While standard-setters have provided similar definitions of accounting conservatism, no specific guidance exists with respect to the measurement of accounting conservatism and the degree of conservatism a firm is allowed to exercise. To this end, academic researchers have endeavoured to develop valid empirical measures of accounting conservatism. Based on a widely used scheme proposed by Watts (2003a, 2003b) and Beaver and Ryan (2005), accounting conservatism is classified as unconditional or conditional based on whether its occurrence depends on economic news events that will alter the present value of future cash flows.

In particular, unconditional conservatism, also referred to as *ex ante* or news-independent conservatism, represents the *ex ante* under-measurement of the book value of net assets below their expected market values at initial recognition of these assets. It is independent of current economic gains (i.e. increase in expected future cash flows) or losses (i.e. decrease in expected future cash flows). Examples of unconditional conservatism involve the accelerated depreciation method, historical cost accounting and the accounting method expensing intangible assets immediately rather than amortizing them at an expected economic amortisation rate (Beaver & Ryan, 2005).

Distinct from unconditional conservatism, conditional conservatism is also referred to as *ex post* or news-dependent conservatism, meaning that the asymmetric timeliness in recognising economic gains and losses will depend on the nature of the news. Under conditional conservatism, the book value of net assets is written down in a timely fashion when firms face bad news but written up less quickly when they receive good news (Beaver & Ryan, 2005). Examples involve the lower of market or cost accounting method and the timely recognition of all-assets impairment, while recognising the expected added value until the realisation of expected values.

The most widely used and influential measure of conditional conservatism is the asymmetric timeliness of accounting earnings developed by Basu (1997) based on the notion of an "accountants' tendency to require a higher degree of verification for recognizing good news than bad news in financial statements" (Basu, 1997, p.4). Under this interpretation, Basu (1997) hypothesizes that the higher verification threshold on the recognition of economic gains than of economic losses, leads to asymmetric timeliness[38] in earnings in the

[38] The term 'timeliness' is defined as "the extent to which current-period accounting income incorporates current-period economic income" (Ball et al., 2000). The conservatism definition provided by Basu (1997) is

context of different news' environments. To test this hypothesis, Basu (1997) introduces an earnings-return regression model to measure the asymmetric timeliness in earnings in which earnings is the dependent variable and annual stock return is the independent variable serving as the proxy for the news environment. By using the asymmetric timeliness coefficient to measure the asymmetric timeliness, Basu (1997) shows supporting evidence for the presence of asymmetric timeliness in earnings. Following this seminal work, studies have extensively adopted the Basu (1997) approach to examine the determinants and consequences of conditional conservatism and report consistent evidence supporting the presence of conditional conservatism (among others, Ball et al., 2000; Ball, Robin, & Sadka, 2005; Ball, Robin, & Wu, 2003; Ball & Shivakumar, 2005; Lobo & Zhou, 2006)

4.2.2 Litigation demands for accounting conservatism in mitigating agency conflicts

According to agency theory (Jensen & Meckling, 1976), when external parties believe their self-interests are best served if earnings are reported conservatively, they will try to induce managers to engage in conservative reporting practices using various channels such as the signing of contracts, standard-setting and regulation (Bushman & Piotroski, 2006; Watts, 2003a, 2003b). Many studies emphasize the role of conservatism in helping constrain managerial opportunism and alleviating agency conflicts (e.g. Ball et al., 2005; Holthausen & Watts, 2001; Mora & Walker, 2015; Ruch & Taylor, 2015; Watts, 2003a, 2003b; Watts & Zimmerman, 1986). These studies characterize accounting conservatism as an endogenous variable that emerges in equilibrium, to alleviate agency conflicts by constraining the ability of managers to take actions that hurt constituents of the nexus of contracts, particularly

---

thus the extent to which current-period accounting income asymmetrically incorporates economic losses, relative to economic gains.

between debtholders and shareholders or managers. Given the demands of these transacting parties, firms will have incentives to make conservative choices in financial reporting and operation decisions, which can lead to asymmetric timeliness in accounting earnings, accruals and operating cash flows. To further explore the underlying reasons of conservatism, Watts (2003a) specifically proposes four types of external conservatism demands: contracting, litigation, regulatory and taxation.

In this study, I focus on the litigation demand. Unlike the contracting explanation, the litigation explanation is a more recent phenomenon and has been considered as a significant driver of conservatism in recent years (García Lara et al., 2009). Watts (2003a, 2003b) argues that the asymmetry in expected litigation costs creates incentives for managers and auditors to engage in conservative practices. This phenomenon stems from the probability of securities litigation for firms and auditors being much higher when earnings and net assets are overstated than when understated (Watts, 2003a, 2003b); therefore, the expected litigation costs are higher when companies overstate their earnings than when they understate the earnings. Accordingly, there is an asymmetry in the loss function for firms and auditors caused by litigation risk. Extant research on litigation shows that lawsuits against firms and auditors are almost always related to situations in which earnings or net assets have been overstated (Kellogg, 1984) or the firm reports significant income-increasing abnormal accruals (Heninger, 2001).

In this context, managers have incentives to report conservative values for earnings and net assets to mitigate litigation costs. Accounting conservatism thus plays an important role in mitigating the negative effects of information asymmetries, reducing moral hazard, adverse selection and other agency problems in addition to litigation and reputation risk. Ettredge et al. (2015) report that more conditionally conservative firms have lower future shareholder litigation costs.

Prior empirical literature testing the litigation explanation finds supporting evidence for both conditional and unconditional conservatism (e.g. Ball et al., 2000; Ball et al., 2003; Basu, 1997; Bushman & Piotroski, 2006; Chung & Wynn, 2008; Holthausen & Watts, 2001). For example, in an international context, Ball et al. (2000) and Bushman and Piotroski (2006) provide supportive evidence of substantial cross-country variation in the degree of conditional conservatism. Specifically, Bushman and Piotroski (2006) find that firms in Anglo-Saxon common-law countries, where litigation risk is more pronounced, exhibit conditional conservatism to a larger extent than firms in countries where the expected chances of successfully defending investors' interests in the firm in court are low. Additionally, Ball et al. (2003) also show that conditional conservatism across several common-law countries varies positively with litigation risk. With respect to the change in conditional conservatism over time in the United States, Basu (1997) and Holthausen and Watts (2001) find that the degree of conditional conservatism has increased with the level of litigation risk. Consistent with this finding, Chung and Wynn (2008) demonstrate that conditional conservatism can be used by firms to insure against litigation costs. Furthermore, Qiang (2007) shows that firm-level proxies for litigation risk are positivity associated with measures of both conditional and unconditional conservatism.

4.2.3 Exogenous shock to litigation exposure resulting from the SGI ruling decision[39]

In the context of the federal securities laws within the United States, private class actions have been used to alleviate the collective action problem faced by individual

[39] Only a brief overview of the SGI decision is presented in this paper. The SGI decision is discussed in more detail in Hopkins (2017) and Huang et al. (2018).

shareholders. Theoretically, the Securities Class Action Litigation in the United States has been perceived to function as a potentially useful mechanism to discipline opportunistic managers and controlling shareholders as it enables individual shareholders to form a class and sue managers and directors for violating SEC rules (Choi, 2004; Hopkins, 2017).

Prior to 1995, class action lawsuits in the United States relied upon the ‘fraud-on-the-market’ economic theory. Grounded on the assumption that all material information is available to investors, the theory states that stock prices are a function of all material information about the company and its business. Therefore, a large stock price drop was thus synonymous with corrective revelations and sufficient to trigger litigation (Skinner, 1994; Francis et al., 1994). Under these conditions, plaintiffs were not required to prove that managers issued misleading information or were responsible for material omissions because all public information was presumably reflected in the stock price. These low-pleading standards resulted in many frivolous lawsuits and high dismissal rates (Johnson, Kasznik, & Nelson, 2001). In response to concerns about abusive class securities litigation and related corporate lobbying, Congress amended the federal securities laws by enacting the Private Securities Litigation Reform Act of 1995 (PSLRA) on December 22, 1995, heightening pleading standards for shareholders to form a class (Levine & Pritchard, 1998). With the enactment of PSLRA, plaintiffs were required to provide proof of scienter (i.e. intent or knowledge of wrong-doing). However, the power of interpretation of PSLRA’s pleading standards was left to individual U.S. circuit courts. The courts have interpreted the Reform Act’s pleading standard in diverse ways, with the Ninth Circuit’s interpretation in Silicon Graphics being the most stringent (Grundfest & Pritchard, 2002; Johnson, Nelson, & Pritchard, 1999).

On July 2, 1999, the Ninth Circuit Court of Appeals issued a court ruling (Re: Silicon Graphics Inc. Securities Litigation, 183 F.3d 970)[40] that required plaintiffs in the Ninth Circuit to prove that the defendants, when making the misrepresentation that gave rise to the fraud claim, acted with "deliberate recklessness" rather than mere "recklessness" which is sufficient in other circuits. The ruling was highly unexpected and came as a surprise as the Ninth Circuit Court was at the time considered one of the most plaintiff-friendly circuit courts with a high volume of securities class action litigation (Gibney, 2001; Johnson et al., 1999; Pritchard & Sale, 2005). This ruling significantly elevated the burden of proof given that evidence of intent is usually obtained only in discovery, after a class has been formed, and it therefore increased the threshold for filing a suit against corporations headquartered in this circuit (Pritchard & Sale, 2005).[41]

The resulting reduction in firms' litigation exposure exerted strong influences on the market. For example, empirical evidence shows that the strengthened pleading standards led to a reduction in the incidence of class action lawsuits. Crane and Koch (2016) document that relative to the first half of 1999, lawsuit filings in the second half decreased in the Ninth Circuit by 43% compared to an increase of 14% in other circuits. Pritchard and Sale (2005) report that the exceptionally strict pleading standards in the Ninth Circuit led to a higher rate of dismissals by courts in that circuit.

However, whether securities class actions function as intended is still an open question empirically (Hopkins, 2017). On one hand, the opponents claim that "private class actions

---

[40] Re: Silicon Graphics Inc. Securities Litigation, 183 F.3d 970 (9th Cir. 1999) involved an allegation that managers engaged in insider trading after issuing misleading statements to hype the stock price. The case was dismissed on the premise that stock sales coupled with negative internal performance news are insufficient to prove that managers' actions were deliberate. The ruling was unexpected and likely reflected the beliefs of the judges randomly selected from the pool and appointed to this particular case (Hopkins 2017).

[41] The majority of lawsuits are litigated where the firms' headquarters are located (Cox, Thomas and Bai, 2009). The Ninth Circuit includes the following states: Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon and Washington (see Appendix 4 for a map of the districts).

move a lot of money around but add little to deterrence at the margin" (Pritchard, 2009). These scholars suggest that the costs that any individual bears may be too low to discipline managers from violating securities laws (Alexander, 1991; Coffee, 2006). Indeed, individual executives or directors contribute only around 0.4% of total settlements, whereas insurance companies and the corporation bear the majority of the cost (Dunbar, Foster, Juneja, & Martin, 1995). Furthermore, since recovery rates are only 2–3% of losses (Milev, Patton, & Starykh, 2011), shareholders have little incentive to vigorously monitor executives.

On the other hand, the proponents contend that the securities class action plays an effective role in regulating securities markets. Several studies investigate and document supporting evidence for the role of litigation risk in disciplining managerial reporting behaviour in both voluntary disclosure (e.g. Baginski, Hassell, & Kimbrough, 2002; Johnson et al., 2001; Rogers & Van Buskirk, 2009; Skinner, 1994, 1997) and mandatory financial reports (Hopkins, 2017; Huang et al., 2018).

For example, by using the SGI decision as an exogenous reduction in firms' litigation exposure, Hopkins (2017) finds evidence showing that affected firms were more likely to restate financial statements following the decrease in litigation risk relative to unaffected firms. Furthermore, he finds that the increase is more pronounced within firms that are the most likely to abuse the reduction in litigation risk and misreport, consistent with the threat of shareholder litigation disciplining managerial reporting practices and deterring misreporting. Similarly, Cazier, Christensen, Merkley and Treu (2017) document an increase in non-GAAP reporting following the Ninth Circuit ruling which they interpret as evidence that litigation discourages voluntary non-GAAP reporting. Consistent with this conclusion, by utilizing the same natural experiment, Houston, Lin, Liu, and Wei (2015) use the Ninth Circuit ruling to provide evidence on the disciplining effect of litigation on management forecasts. In another recent study, Huang et al. (2018) predict and find that the reduced shareholders' ability to initiate class action lawsuits following the SGI decision results in an increased level of real earnings management for firms headquartered in states within the Ninth Circuit relative to other firms. Moreover, they find that those increases are concentrated among a subset of firms with entrenched managers and firms with lower institutional ownership. Their findings lend further support to the role of the threat of litigation in disciplining managers.

4.2.4 Impact of the SGI decision on conditional conservatism

According to the litigation demand explanation of conservatism proposed by Watts (2003a, 2003b), I expect a positive association between firms' litigation risk and conservatism. In particular, given that the director and managers have opportunistic incentives to deviate from the best practices that maximise shareholder interests (Adams & Ferreira, 2007; Laux, 2008; Taylor, 2010), the Securities Class Action Litigation in the United States has been perceived to be a potentially useful mechanism to discipline opportunistic managers and controlling shareholders as it enables individual shareholders to form a class and sue managers and directors for violating SEC rules (Choi, 2004; Hopkins, 2017). When facing high levels of litigation risk, firms are found to use conditional conservatism to insure against litigation costs (Chung & Wynn, 2008). However, when directors and managers' litigation risk is limited, directors' monitoring incentives are likely to be reduced and managers are expected to be less prone to engage in conservative reporting practices.

Several studies provide evidence consistent with the abovementioned monitoring role of conservatism. For example, prior studies have used time periods, legal systems of different countries, cross-listing status of firms and strength of legal enforcement to explore how litigation risk affects accounting conservatism (e.g. Ball et al., 2000; Basu, 1997; Bushman & Piotroski, 2006; Holthausen & Watts, 2001; Huijgen & Lubberink, 2005; Jayaraman, 2012; Lang et al., 2003). Moreover, previous literature has also separately documented that litigation risk of different stakeholders of the firms such as auditors and managers affects conservatism (e.g. Chung & Wynn, 2008; Qiang, 2007).

However, the extant empirical findings largely fail to establish causal links and thus it is difficult to rule out the possibility that conservatism is driven by factors other than litigation demand. This is partly attributed to the endogenous nature of conservatism that makes it difficult to establish a causal link between the threat of shareholder litigation and conservatism. Distinguished with prior studies, I extend this literature by treating the SGI court ruling decision as a proxy for a change in firms' litigation risk. Since it is arguably exogenous to firms' accounting choices, this natural event helps me overcome the endogeneity problem and allows me to identify a clear causal link between litigation exposure and conservatism (Hopkins, 2017; Huang et al., 2018).

In particular, this paper examines the perceived effectiveness of securities class actions by examining the managerial response to a shock in the *ex ante* risk of securities class actions, and more specifically, testing whether they encourage conservative reporting behaviour. By introducing heightened pleading standards, the SGI decision significantly reduced the litigation risk for public firms as it made it easier for them to defend against security class actions. In fact, empirical evidence shows that the strengthened pleading standards led to a reduction in the incidence of class action lawsuits (e.g. Crane & Koch, 2016; Pritchard & Sale, 2015). Since the SGI decision limited directors' litigation risk and thus is likely to reduce the directors' monitoring incentives, managers are expected to be less likely to engage in conservative reporting practices.

However, since the reduced litigation risk could help firms to attract and retain talented outside directors (Balotti & Gentile, 1987; Bradley & Schipani, 1989) or more risk-averse directors, both of which could potentially strengthen board monitoring, the possibility exists that affected firms may exhibit no change (or even an increase) in the level of financial reporting conservatism following the SGI decision. Nevertheless, based on the above discussions, the reasons to expect lower conservatism after the SGI circuit court ruling decision are more persuasive. Therefore, I hypothesize that the reduced litigation demand resulting from the ruling leads to a lower degree of conservatism, which gives rise to the following hypothesis:

Hypothesis 1: *Relative to firms headquartered in other jurisdictions, firms headquartered in states within the Ninth Circuit exhibit a lower level of conservatism than before the SGI circuit court ruling decision.*

4.3 Research Design

4.3.1 Exogenous shock to litigation risk

This paper tests whether the threat of litigation risk affects firms' financial reporting behaviour. In his discussion of the economic role of financial reporting, Ball (2008, p. 9) opines that "the cleanest research design for investigating the underlying economic and political forces behind financial reporting involves locating genuinely exogenous shocks to the system, and tracing their effects." I use the SGI decision as an exogenous shock to litigation risk and examine how this shock alters firms' propensity to engage in conservative financial reporting practices. Following prior studies (Cazier et al. 2016; Crane and Koch

2016; Houston et al. 2015; Hopkins, 2017), this paper focuses on the appellate court decision which established a binding precedence in the Ninth Circuit.[42]

As documented by Hopkins (2017), the SGI decision can serve as a good natural experimental setting for several reasons, including the following: (1) the setting provides a natural control group, allowing for a difference-in-differences design[43]; (2) in the Ninth Circuit, three judges are randomly selected from the judicial pool to adjudicate cases; and (3) the SGI decision sharply and unexpectedly reduced the risk of securities class actions (Billings, Klein, & Zur, 2012; Gibney, 2001; Pritchard & Sale, 2005). To sum up, the decision was unexpected and well publicized, and it significantly altered judicial outcomes (Hopkins, 2017).

4.3.2 Measuring conditional conservatism

Following prior studies (e.g. Jayaraman, 2012), I measure accounting conservatism based on *CSCORE* developed by Khan and Watts (2009). The *CSCORE* draws on the Basu (1997) measure of asymmetric timeliness, allowing me to estimate a firm-year measure of conservatism. Following Khan and Watts (2009), Basu (1997) cross-sectional regression is specified as

$$Y_i = \alpha_0 + \alpha_1 DRET_i + \alpha_2 RET_i + \alpha_3 DRET_i * RET_i + \varepsilon_i \quad (1)$$

where *i* indexes the firm, *Y* represents earnings and *RET* is the annual stock rate of return of the firm. *DRET* is a negative returns dummy variable that equals one if *RET* is negative, and zero otherwise. The good news timeliness measure is α_2. The coefficient of main interest is α_3

[42] According to Federal Rules of Civil Procedure 83(a)1, district court decisions do not establish precedence for other districts, but "[remain] in effect unless amended by the court or abrogated by the judicial council of the circuit."

[43] Although shareholders can file a securities class action lawsuit anywhere the corporation has an economic presence, the vast majority are eventually litigated where the corporation is headquartered (Cox, Thomas, & Bai, 2009). Hence, the decision primarily affected firms headquartered within the Ninth Circuit (Hopkins, 2017).

which is a measure of incremental timeliness for bad news over good news and thus captures the level of asymmetric timeliness of earnings, or conservatism.

To estimate the timeliness with which accounting reflects both good news and bad news at the firm-year level, Khan and Watts (2009) specify that both the timeliness of good news (referred to as the *GSCORE*) and the incremental timeliness of bad news (referred to as the *CSCORE*) each year are linear functions of firm-specific characteristics each year:

$$GSCORE_{i,t} = \alpha_2 = \mu_1 + \mu_2 SIZE + \mu_3 MB + \mu_4 LEV \quad (2)$$

$$CSCORE_{i,t} = \alpha_3 = \lambda_1 + \lambda_2 SIZE + \lambda_3 MB + \lambda_4 LEV \quad (3)$$

where *CSCORE* is the firm-year measure of conservatism, or incremental bad news timeliness, while *GSCORE* is the firm-year measure of good news timeliness. Both *CSCORE* and *GSCORE* vary over time as well as across firms through cross-sectional variation in the firm-year characteristics (i.e. size, market-to-book and leverage). A higher *CSCORE* value indicates more conservative financial reporting. Following Khan and Watts (2009), I use the following annual cross-sectional regression model to estimate *CSCORE* and *GSCORE*:

$$\begin{aligned} Y = {} & \beta_0 + \beta_1 DRET + RET\ (\mu_1 + \mu_2 SIZE + \mu_3 MB + \mu_4 LEV) + DRET * RET\ (\lambda_1 + \lambda_2 SIZE + \lambda_3 MB \\ & + \lambda_4 LEV) + (\delta_1 SIZE + \delta_2 MB + \delta_3 LEV + \delta_4 DRET * SIZE + \delta_5 DRET * MB \\ & + \delta_6 DRET * LEV) + \varepsilon \quad (4) \end{aligned}$$

4.3.3 Impact of litigation changes on earnings asymmetric timeliness

A difference-in-differences research design is employed to capture the differential post-ruling changes in financial reporting conservatism for treatment firms (firms headquartered in states within the Ninth Circuit, or Ninth Circuit firms) compared to the corresponding changes for control firms (firms headquartered outside the Ninth Circuit). The year and industry fixed effects are included, and the robust standard errors are clustered by firm to mitigate concerns about serial correlation. I estimate the following difference-in-differences regression specification:

$$CSCORE = \eta_0 + \eta_1\ C9FIRM + \eta_2\ POST + \eta_3 C9FIRM * POST + Control\ Variables + Industry\ Dummies + Year\ Dummies + \varepsilon \quad (5)$$

where *C9FIRM* is a dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise. *POST* is a dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002. The primary focus of the analysis is η_3, which is predicted to be negative; that is, I expect the firms headquartered within the Ninth Circuit to experience a decrease in conservatism in the post-ruling period.

To control for possible confounding effects of some firm-specific factors on the cross-sectional variation in earnings asymmetric timeliness, a set of control variables is included in the analyses, including size (*SIZE*), return on assets (*ROA*), firm age (*FIRMAGE*), market-book-ratio (*MB*), stock return volatility (*STDRET*), leverage (*LEV*), financial distress (*ALTMAN_Z*) and a dummy variable for Big-4 firm that is set equal to one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms (*BIG_4*) (Gong & Luo, 2018). A summary of these variables and their measurements is presented in Appendix 3. Following Lafond and Roychowdhury (2008), I measure all control variables at the beginning of the year.

4.3.4 Data and the sample

I restrict the sample to the period from 1995 to 2002.[44] The initial sample consists of all firms with sufficient accounting and stock price data required from the merged CRSP and COMPUSTAT databases for the sample period. To mitigate the effects of outliers, all continuous regression variables are winsorised at the top and bottom 1%. Based on the initial sample, I first drop utilities (SIC 4900-4999) and financial service firms (SIC 6000-6999) to eliminate the potential effects of the differences in the firms' regulatory environments. I also exclude penny stocks (firms with stock price smaller than $1). Finally, after requiring each firm in the sample to have at least one observation in both the pre- and post-ruling periods, the final treatment sample comprises 5,740 firm-year observations, while the control sample comprises 25,616 observations over the same period.

4.4 Empirical Results

4.4.1 Summary statistics and correlation analyses

Table 4.1 reports descriptive statistics for firms' *CSCORE* as well as the control variables for the sample. The intersection of observations with sufficient data to compute all measures includes 29,222 firm-years. The results indicate that, on average, earnings are equal to 0.4% of lagged market value (the median is 4.0%). Earnings are negatively skewed, consistent with the presence of conditional conservatism (e.g. Ball et al., 2000; Banker et al., 2013; García Lara et al., 2009; Steele, 2011). Stock returns are 14.8% on average and are negative (*DRET* = 1) for 49.1% of the sample. Moreover, sample firms, on average, have an ROA of 2.2%, a firm age of around 4.5 years and a financial leverage of 22%. Big-4 auditors audit over two-thirds of the sample, which is similar to the proportion reported by Jayaraman

[44] The sensitivity of the results to using a shorter window around the ruling is presented in Section 4.4.5.

(2012). Table 4.2 presents the Pearson correlations among the variables used in the main analyses. As expected, by definition, *SIZE*, *ROA* and *MB* are highly correlated with *CSCORE*.

[Insert Table 4.1 and 4.2 here]

4.4.2 Empirical results on the differential accounting conservatism surrounding the SGI decision

In this section, I examine whether the SGI court decision and the resulting decrease in litigation risk led to any significant changes in the firms' propensity to engage in conservative financial reporting practices. In particular, I estimate equation (5) wherein a difference-in-differences research design is employed. This design allows me to compare the post-ruling changes in conservatism, measured using *CSCORE*, for the Ninth Circuit firms relative to post-ruling changes for other firms. Table 4.3 presents the results, with the coefficient on the interaction term *C9FIRM* * *POST* (η_3) being of primary interest. H1 predicts that relative to firms headquartered in other jurisdictions, firms headquartered in the Ninth Circuit exhibit a lower level of conservatism than before the ruling, and therefore a significantly negative coefficient η_3 is expected.

The results reported in Table 4.3 reveal a significant reduction in *CSCORE* for affected firms following the ruling, with a negative and significant coefficient (coefficient = −0.008; p-value < 0.001) on the interaction term (η_3). This finding supports H1, indicating that Ninth Circuit firms, on average, experienced a lower level of financial reporting conservatism following the SGI decision.

[insert Table 4.3 here]

4.4.3 Other demands for conservatism

The possibility exists that the previous findings are driven by demands for conservatism other than litigation. As such, I conduct additional tests to tease out alternative explanations and to investigate whether the conservatism effects documented earlier are more pronounced in firms where theory predicts they will be most prevalent.

First, the effect of the change in litigation risks on firms' conservatism could be driven by shareholders' influence on accounting quality. In particular, among the treatment firms (Ninth Circuit firms), I expect those with higher levels of institutional ownership to experience smaller decreases in conditional conservatism since they have incentives to level up their conservatism in response to the high equity-contracting demand of institutional shareholders. To examine whether and how the post-ruling reductions in conservatism vary depending on firms' equity contracting demand, I split the sample based on the median level of firms' institutional ownership percentage (*INSTOWN*), and I classify those with a percentage above (below) the median as high *INSTOWN* (low *INSTOWN*) firms. Columns (1) and (2) of Table 4.4 present results from estimating equation (5) for these subsamples. Consistent with the main hypothesis, after controlling for the effect of institutional ownership, the coefficients of the main variable of interest *C9FIRM * POST* remain significantly negative. In terms of the magnitudes of the coefficients, as predicted, the results suggest that among all treatment firms, those that faced higher equity contracting demand from shareholders experienced lower decreases in conservatism following the SGI decision.

Next, I explore how variations in the firm's auditor litigation risk influences the main result as the result could be driven by the litigation demand from auditors and the regulation demand on accounting conservatism. Prior studies show that firms audited by Big-N auditors have higher reporting conservatism and better earnings quality (Francis & Krishnan, 1999;

Francis et al., 1999). To address this possibility, I split the sample based on whether the firm's auditor is a Big-N auditing firm and re-estimate equation (5) for each subsample.

Furthermore, to control for regulation demand for conservatism, I partition the entire sample into firms with high and low regulation cost based on a measure of the expected costs imposed by accounting regulation (*REGUCOST*) and estimate equation (5). Results are presented in Table 4.4. As presented in Columns (3) through (6) of Table 4.4, the coefficients on *C9FIRM * POST* remain negative and significant in all specifications, suggesting that the reduction in conservatism is unaffected by controlling for auditor litigation and regulation demands.

Finally, as documented by Watts (2003a, 2003b), firms' conservative reporting practices may also be influenced by the expected tax costs. In particular, firms may adopt conservatism to reduce the present value of tax payments. Given this possibility, I follow prior studies (e.g. García Lara et al., 2009; Qiang, 2007) and control for the tax status of the firm by using an indicator variable (*TAXCOST*) that is set equal to one if the average over three years of the ratio of current income tax over tax expense is between 0.8 and 1.2, and zero otherwise. As presented in Columns (7) and (8) of Table 4.4, the main coefficients on *C9FIRM * POST* remain similar to those reported in Table 4.3 before controlling for the tax-related incentives.

Collectively, the results shown in Table 4.4 lend further support to the main findings by ruling out the alternative explanations of change in conservatism and showing that the conservatism effects documented earlier are more pronounced in firms in which theory predicts they will be most prevalent.

[Insert Table 4.4 here]

4.4.4 Further analyses

In this section, I conduct a number of further analyses to rule out alternative explanations for and potential confounding effects on the impact of the ruling on conservatism in treatment firms.

Exclusion of Nevada and Delaware

As firms incorporated in Nevada and Delaware form a large proportion of the sample, a possibility exists that the self-selection of states of headquarters confounds the observed impact of the SGI decision on conservatism. Given this, I check the robustness of the inferences to ensure that the main results are not driven by Nevada and Delaware firms but can be generalized to all firms. For this test, I exclude Nevada and Delaware firms from the sample and rerun equation (5). The results are presented in Columns (1) and (2) of Table 4.5. Specifically, as shown in Table 4.5, I find that the estimated effects of the ruling on conservatism are consistently negative and significant for both the non-Nevada (coefficient = −0.010) and non-Delaware (coefficient = −0.008) subsamples. Both of these coefficients are significant at the 1% level.

[Insert Table 4.5 here]

Shorter event windows

Following Huang et al. (2018), I restrict the sample to the period from 1995 to 2002 (pre-ruling period: 1995-1998; post-ruling period:1999-2002). I examine the sensitivity of the results to using shorter event windows to rule out possible confounding events during a longer period. In particular, I restrict the sample to observations that are within three years of the ruling year. Similar to the main analyses, I retain observations with at least one year of data in both the pre- and the post-ruling periods. Results based on a smaller sample of 21,598 firm-year observations are presented in Column (3) of Table 4.5. Consistent with the earlier results, the coefficient on the interaction term *C9FIRM * POST* remains negative and significant, suggesting a strong decrease in reporting conservatism for treatment firms after the SGI decision. Thus, the main results are robust to using a shorter event window, which lends further support to the main findings.

Controlling for earnings management

Prior evidence suggests that earnings management could produce some of the evidence on conservatism (e.g. Watts 2003a, 2003b). As such, I undertake additional analyses to explore whether earnings management explains part of the documented reduction in Ninth Circuit firms' conservatism after the ruling decision. In particular, three proxies are used to measure the equity-market pressures the firm faces to avoid missing earnings benchmarks. Specifically, *BEATMEET* is an indicator variable that is set equal to one if the firm meets or just beats the consensus analyst earnings forecast by $0.01, and zero otherwise. *SUSPECT* is an indicator of suspect earnings management, and *AVOIDDEC* is an indicator of a recorded loss. The entire sample is partitioned based on these measures, and equation (5) is re-estimated for each subsample. As reported in Table 4.6, I continue to find post-ruling decreases in conservatism among Ninth Circuit firms in all six subsamples.

[Insert Table 4.6 here]

Controlling for external monitoring

There is a possibility that the pressures from some external monitoring mechanisms could affect the firm's degree of reporting conservatism and thus could confound the main results. To rule out this concern, I first use analyst coverage as a proxy for external monitoring. As suggested by Yu (2008), analysts serve as external monitors for managers in that they often interact directly with management during earnings release conference calls, when analysts may question aspects of a firm's financial reporting. Because of analysts' active participation in the information distribution process, managers' reporting decisions can be influenced by the intensity of analyst coverage. Supporting evidence is provided in many prior studies (e.g. Chang, Dasgupta, & Hilary, 2006; Chung & Jo, 1996; Graham et al., 2005; Healy & Palepu, 2001; Irvine, 2003). Moreover, as analysts serve as an external monitoring mechanism, I predict that the observed decreases in conditional conservatism is more pronounced within firms with a lower intensity of analyst coverage. Therefore, I partition the sample based on firms' analyst coverage, and I rerun equation (5) for each subsample. The results presented in Columns (1) and (2) of Table 4.7 show that the analyst coverage has no observed effect on the documented reduction in conservatism. Furthermore, as predicted, the firms with a lower level of analyst coverage are more likely to reduce their conditional conservatism following the ruling decision, consistent with prior evidence (e.g. Yu, 2008).

Furthermore, prior literature documents that firms facing financial constraints are more likely to engage in opportunistic accounting discretion on the one hand and to need financing to survive on the other, which might trigger a higher level of external monitoring for these firms. To ensure that the main results are not driven by firm financial health, I classify firms into two subsamples based on a measure of financial distress represented by an indicator variable that equals one if the firm's Altman Z-score (*ALTAMN_Z*) is greater than year median, and zero otherwise. The results are shown in Columns (3) and (4) of Table 4.7. As reported in Table 4.7, after I control for firm financial health, the main variable of interest *C9FIRM * POST* remains significantly negative, further corroborating the main result.

[Insert Table 4.7 here]

Taken as a whole, the main result is not qualitatively changed under these additional tests. In other words, the results of these cross-sectional analyses further corroborate the inferences that firms' reduced propensity to engage in conservative financial reporting practices is a response to the shock to litigation risk.

4.5 Conclusion, Implications and Limitations

Establishing the causal link between litigation risk and accounting conservatism is empirically challenging due to the endogenous nature of the conservative reporting decisions. By utilising a natural experiment, this paper examines whether an unexpected change in the risk of securities class actions affects firms' conservative financial reporting practices. I first identify a court decision that reduced the risk of securities class actions for firms headquartered within the states covered by the Ninth Circuit Court of Appeals. The decision was unexpected and well publicized, and it significantly altered judicial outcomes. The results from a difference-in-differences test indicate that the level of firms' conservatism decreased after a decline in the risk of securities class actions for treatment firms (those headquartered in the Ninth Circuit) relative to control firms (all others), and such decreases are significant both economically and statistically.

The inference is robust to a variety of sensitivity tests, such as testing other conservatism demands and controlling for a range of confounding factors that could impact the relationship, including endogenous self-selection of states of headquarters, event windows, earnings management and the pressures from external monitors. The results of these tests further confirm that the threat of securities class actions directly affects the level of conservatism. Overall, the findings in this study suggest that the threat of shareholder litigation can discipline managerial reporting practices, and hence, they provide insight into the monitoring role of the shareholder litigation risk in financial reporting. As such, this evidence informs the debate about the role of securities class actions in regulating securities markets.

This study has three main limitations. First, the conservatism measure (*CSCORE*) used in this study is developed by Khan and Watts (2009) based on the Basu (1997) approach to measuring asymmetric timeliness of earnings. However, several recent studies argue that the Basu (1997) methodology of measuring the asymmetric timeliness of earnings is fraught with severe measurement errors. For example, Givoly, Hayn, and Natarajan (2007, p.66-67) state the following:

> *Our conclusion is that inferences regarding the variation of conservatism across firms, time periods, countries or reporting regimes cannot be reliably made based on the [earnings] DT measure without controlling for certain characteristics of the information and disclosure environments of the compared samples.*

Patatoukas and Thomas (2011) attribute the substantial bias in earnings asymmetric timeliness to two empirical regularities related to scale, namely the negative relation between scale (i.e. price) and return variances (return variance effect) and the negative relation between the probability of reporting a loss (loss effect).

Proponents of conservatism research argue that there is compelling economics-based theory to support the presence of conditional conservative reporting (asymmetric timely loss recognition of earnings). They posit that measurement errors in the asymmetric timeliness of earnings estimated from the Basu (1997) approach can be identified and controlled for, permitting valid and reliable inferences to be drawn (Ball et al., 2013a, 2013b; Khan & Watts, 2009). In addition, Collins et al. (2014) examine the robustness of the presence of CFO asymmetry to potential measurement errors identified in previous studies. They find that, distinct from earnings asymmetric timeliness, CFO asymmetry is much less likely to be affected by the identified measurement errors and thus is more robust.

Second, the results of this study may not be generalizable outside the United States since other countries may have unique institutional environments. In comparison with the United States, these countries may have institutional differences in market structures, litigation environments and tax regimes. For example, in Australia, around 40% of listed firms are within the mining industry, which is markedly different from other countries, including the United States. Such differences, as documented by Bushman and Piotroski (2006), lead to differential incentives affecting the behaviour of both internal managers and external parties such as investors, regulators and other market participants, thereby ultimately resulting in differences in the attributes of reported accounting data. This is further supported by evidence obtained by Ball et al. (2000). By investigating the degree of asymmetry timeliness across seven countries, they find that countries under the common-law system have higher degrees of earnings asymmetric timeliness than countries under the code-law system due to differential litigation and regulatory costs. Therefore, future research may investigate the role played by the threat of litigation in influencing firms' reporting practices in other country settings with institutional environments that differ from those of the United States.

Appendix 3: Variable Measurement

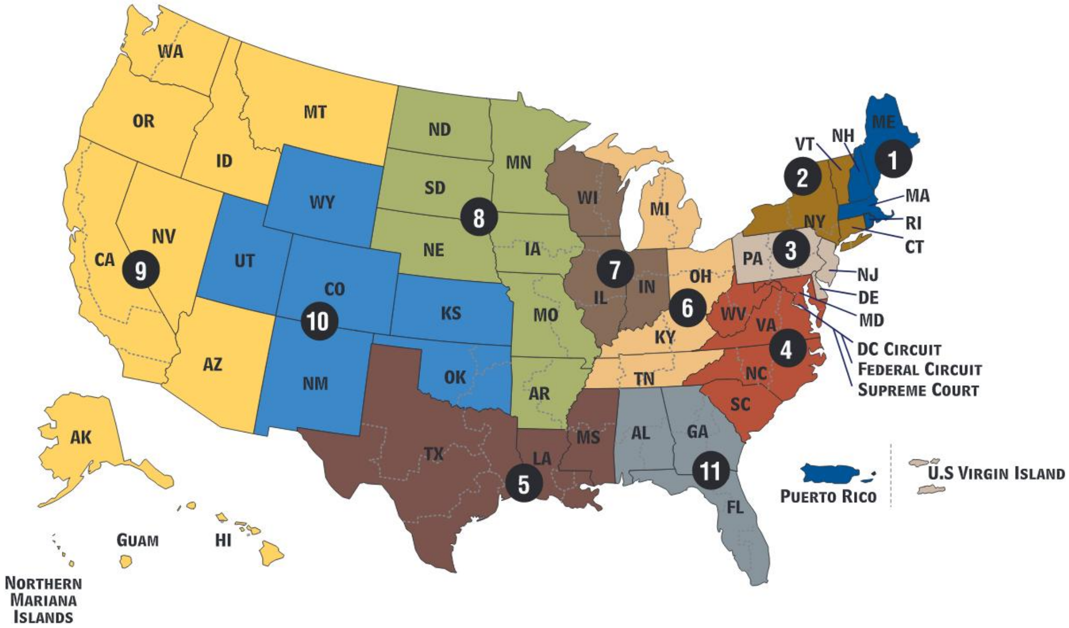
Variable	Measurement (Compustat item)
Panel A: Variables used in the regression models testing the differential asymmetric timeliness surrounding the SGI decision	
EARN	Net income before extraordinary items (IB), scaled by lagged market value of equity (CSHO * PRCC_F).
RET	Fiscal year returns measured by twelve-month buy-and-hold returns from fiscal year-end $t-1$ to fiscal year-end t.
DRET	A dummy variable set to one if stock returns RET are negative, and zero otherwise.
CSCORE	The firm-year measure of conservatism based on Khan and Watts (2009). The following annual cross-sectional model is first estimated: $Y_{i,t} = \beta_0 + \beta_1 DRET_{i,t} + RET_{i,t}\ (\mu_1 + \mu_2 SIZE_t + \mu_3 MB_t + \mu_4 LEV_t) + DRET_{i,t} * RET_{i,t}\ (\lambda_1 + \lambda_2 SIZE_t + \lambda_3 MB_t + \lambda_4 LEV_t) + (\delta_1 SIZE_t + \delta_2 MB_t + \delta_3 LEV_t + \delta_4 DRET{*}SIZE_t + \delta_5 DRET{*}MB_t + \delta_6 DRET{*}LEV_t) + \varepsilon_{i,t}$. $CSCORE_{i,t}$ is then calculated as $\lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEV_{i,t}$
C9FIRM	A dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise.
POST	A dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002.
SIZE	Firm size, measured as the natural log of market value of equity (CSHO * PRCC_F).
MB	Firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year.
LEV	Firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity.
Panel B: Control variables	
SIZE	Firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year.
ROA	Return on assets, calculated as net income (NI) divided by average total assets (AT) of the firm.
FIRMAGE	Natural logarithm of the age of the firm at the end of the year, measured as the number of years it has been listed in the Center for Research in Security Prices (CRSP).
MB	Firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year.

STDRET	Stock return volatility, measured by the daily stock return volatility during the prior year.
LEV	Firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity.
ALTMAN_Z	Altman's Z-score, measured in year *t*, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets).
BIG_4	An indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise.

Panel C: Variables used in further analyses

INSTOWN	The percentage of institutional shareholdings at the end of year *t*.
LITICOST	Expected auditor litigation costs, measured by an indicator variable that is set to one if the company's auditor is a big auditing firm (AU) and if the fiscal year is in a high auditor litigation period, and 0 otherwise. Following Basu (1997) and Holthausen and Watts (2001), García Lara, García Osma, Penalva (2009) take the three periods comprising 1967 to 1975, 1983 to 1995, and 2001 to 2005 as having high auditor litigation risk.
REGUCOST	Expected costs imposed via accounting regulation, measured by an indicator variable that is set to one if sales (SALE) deflated by (industry total sales/the number of firms in the industry) is in the top quartile, and zero otherwise; industry is based on two-digit SIC code, as in Qiang (2007).
TAXCOST	Expected reduction in tax costs. An indicator variable set to one if the average over three years (*t* to $t-2$) of the ratio current income tax over tax expense is between 0.8 and 1.2, and zero otherwise, as in Qiang (2007) and García Lara, García Osma, Penalva (2009).
BEATMEET	An indicator variable that equals one if the firm meets or just beats the consensus analyst earnings forecast by $0.01, and zero otherwise.
SUSPECT	An indicator variable of suspect earnings management that equals one if the firm's net profit before tax (IB) lagged by total assets (AT) is between 0 and 0.005, and zero otherwise.
AVOIDDEC	An indicator variable of avoiding earnings decrease that equals one if the difference between current year net income (NI) and prior year net income lagged by the market value of equity is between 0 and 0.01, and zero otherwise.
COVERAGE	The number of analysts issuing earnings forecasts for a firm in the year.
ALTMAN_Z	Altman's Z-score, measured in year *t*, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets).

Appendix 4: U.S. Federal Courts Circuit Map (Geographic boundaries of United States of Appeals and United States District Courts)



Source: U.S. Courts (http://www.uscourts.gov/about-federal-courts/court-role-and-structure), accessed July 2018.

References

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of finance*, *62*(1), 217-250.

Alexander, J. C. (1991). Do the Merits Matter? A Study of Settlements in Securities Class Actions. *Stanford law review*, 497-598.

Baginski, S., Hassell, J., & Kimbrough, M. D. (2002). The effect of legal environment on voluntary disclosure: Evidence from management earnings forecasts issued in US and Canadian markets. *Account. Rev.*, *77*(1), 25-50.

Ball, R., Kothari, S. P., & Nikolaev, V. V. (2013a). Econometrics of the Basu Asymmetric Timeliness Coefficient and Accounting Conservatism. *Journal of Accounting Research*, *51*(5), 1071-1097.

Ball, R., Kothari, S. P., & Nikolaev, V. V. (2013b). On estimating conditional conservatism. The *Accounting Review*, *88*(3), 755-787.

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

Ball, R., Robin, A., & Sadka, G. (2005). Is accounting conservatism due to debt or share markets? A test of “contracting” versus “value relevance” theories of accounting.

Ball, R., Robin, A., & Wu, J. S. (2003). Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics*, *36*(1), 235-270.

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: comparative loss recognition timeliness. *Journal of Accounting and Economics*, *39*(1), 83-128.

Ballotti, R. F., & Gentile, M. J. (1987). Elimination or Limitation of Director Liability for Delaware Corporations. *Del. J. Corp. L.*, *12*, 5.

Banker, R. D., Basu, S., Byzalov, D., & Chen, J. Y. (2013). The Confounding Effect of Cost Stickiness in Conservatism Research. *Working paper. Fox School of Business, Temple University.*

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings 1. *Journal of Accounting and Economics*, *24*(1), 3-37.

Beaver, W. H., & Ryan, S. G. (2005). Conditional and Unconditional Conservatism:Concepts and Modeling. *Review of Accounting Studies*, *10*(2-3), 269-309.

Billings, M., Klein, A., & Zur, E. (2012). Shareholder Class Action Suits and the Bond Market. *Working paper.*

Bradley, M., & Schipani, C. A. (1989). The relevance of the duty of care standard in corporate governance. *Iowa L. Rev.*, *75*, 1.

Bushman, R. M., & Piotroski, J. D. (2006). Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of accounting and economics*, *42*(1), 107-148.

Cazier, R. A., Christensen, T. E., Merkley, K. J., & Treu, J. (2017). Litigation Risk and Non-GAAP Reporting. *Working paper.*

Chang, X., Dasgupta, S., & Hilary, G. (2006). Analyst Coverage and Financing Decisions. *Journal of Finance*, *61*(6), 3009-3048.

Choi, S. J. (2004). The evidence on securities class actions. *Vand. L. Rev.*, *57,* 1465.

Chung, H. H., & Wynn, J. P. (2008). Managerial legal liability coverage and earnings conservatism. *Journal of accounting and economics*, *46*(1), 135-153.

Chung, K. H., & Jo, H. (1996). The impact of security analysts' monitoring and marketing functions on the market value of firms. *Journal of Financial and Quantitative Analysis*, *31*(04), 493-512.

Coffee, J. C., Jr. (2006). Reforming the securities class action: an essay on deterrence and its implementation.(Litigation Reform Since the PSLRA: A Ten-Year Retrospective). *Columbia Law Review, 106*(7), 1534-1586.

Cox, J. D., Thomas, R., & Bai, L. (2009). Do differences in pleading standards cause forum shopping in securities class actions?: Doctrinal and empirical analyses. *Wis. Law Rev.*(2), 421-453.

Crane, A. D., & Koch, A. (2016). Shareholder litigation and ownership structure: Evidence from a natural experiment. *Management Science, 64*(1), 5-23.

Dunbar, F., Foster, T., Juneja, V., & Martin, D. (1995). Recent Trends III: What Explains Settlements in Securities Class Actions. In: NERA.

Ettredge, M. L., Huang, Y., & Zhang, W. (2015). Conservative reporting and securities class action lawsuits. *Accounting Horizons*, *30*(1), 93-118.

FASB. (1980). Statement of Concepts No. 2. In Qualitative Characteristics of Accounting Information. *Stamford, CT: FASB*.

Francis, J., Philbrick, D., & Schipper, K. (1994). Shareholder Litigation and Corporate Disclosures. *Journal of Accounting Research*, *32*(2), 137-164.

Francis, J. R., & Krishnan, J. (1999). Accounting Accruals and Auditor Reporting Conservatism*. *Contemporary Accounting Research*, *16*(1), 135-165.

Francis, J. R., Maydew, E. L., & Sparks, H. C. (1999). The role of Big 6 auditors in the credible reporting of accruals. *Auditing: a Journal of Practice & theory*, *18*(2), 17-34.

García Lara, J. M., García Osma, B., & Penalva, F. (2009). The Economic Determinants of Conditional Conservatism. *Journal of Business Finance & Accounting*, *36*(3/4), 336-372.

Gibney, B. C. (2001). The end of the unbearable lightness of pleading: Scienter after Silicon Graphics. *UCLA Law Review*, *48*(4), 973-973.

Givoly, D., Hayn, C. K., & Natarajan, A. (2007). Measuring reporting conservatism. *The Accounting Review*, *82*(1), 65-106.

Gong, G., & Luo, S. (2018). Lenders' Experience with Borrowers' Major Customers and the Debt Contracting Demand for Accounting Conservatism. *The Accounting Review*.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of accounting and economics*, *40*(1), 3-73.

Grundfest, J. A., & Pritchard, A. C. (2002). Statutes with multiple personality disorders: The value of ambiguity in statutory design and interpretation. *Stanford law review*, 627-736.

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

Heninger, W. G. (2001). The association between auditor litigation and abnormal accruals. The *Accounting Review*, *76*(1), 111-126.

Holthausen, R. W., & Watts, R. L. (2001). The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics*, *31*(1), 3-75.

Hopkins, J. (2017). Do Securities Class Actions Deter Misreporting? *Contemporary Accounting Research.*

Houston, J. F., Lin, C., Liu, S., & Wei, L. (2015). Shareholder litigation and management earnings forecasts. *Working paper*.

Huang, S., Roychowdhury, S., & Sletten, E. (2018). Does Litigation Encourage or Deter Real Earnings Management? *Working paper*.

Huijgen, C., & Lubberink, M. (2005). Earnings Conservatism, Litigation and Contracting: The Case of Cross‐Listed Firms. *Journal of Business Finance & Accounting*, *32*(7‐8), 1275-1309.

IASB. (2001). Framework for Preparation and Presentation of Financial Statements. In. London: *International Accounting Standards Board.*

Irvine, P. J. (2003). The incremental impact of analyst initiation of coverage. *Journal of Corporate Finance*, *9*(4), 431-451.

Jayaraman, S. (2012). The effect of enforcement on timely loss recognition: Evidence from insider trading laws. *Journal of accounting and economics*, *53*(1-2), 77-97.

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

Johnson, M. F., Kasznik, R., & Nelson, K. K. (2001). The impact of securities litigation reform on the disclosure of forward‐looking information by high technology firms. *Journal of Accounting Research*, *39*(2), 297-327.

Johnson, M. F., Nelson, K. K., & Pritchard, A. C. (1999). In Re Silicon Graphics Inc.: shareholder wealth effects resulting from the interpretation of the Private Securities Litigation Reform Act's pleading standard. *S. Cal. L. Rev.*, *73*, 773.

Kellogg, R. L. (1984). Accounting activities, security prices, and class action lawsuits. *Journal of Accounting and Economics*, *6*(3), 185-204.

Khan, M., & Watts, R. L. (2009). Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of accounting and economics*, *48*(2-3), 132-150.

Lafond, R., & Roychowdhury, S. (2008). Managerial Ownership and Accounting Conservatism. *Journal of Accounting Research*, *46*(1), 101-135.

Lang, M., Raedy, J. S., & Yetman, M. H. (2003). How representative are firms that are cross‐listed in the United States? An analysis of accounting quality. *Journal of Accounting Research*, *41*(2), 363-386.

Laux, V. (2008). Board independence and CEO turnover. *Journal of Accounting Research*, *46*(1), 137-171.

Levine, D. M., & Pritchard, A. C. (1998). The securities litigation uniform standards act of 1998: The sun sets on California's blue sky laws. *Bus. Law.*, *54*, 1.

Lobo, G. J., & Zhou, J. (2006). Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence. *Accounting Horizons*, *20*(1), 57-73.

Milev, J., Patton, R., & Starykh, S. (2011). Recent trends in securities class action litigation: 2011 midyear review. Washington DC: Nera Economic Consulting.

Mora, A., & Walker, M. (2015). The implications of research on accounting conservatism for accounting standard setting. *Accounting and Business Research*, *45*(5), 620-650.

Patatoukas, P. N., & Thomas, J. K. (2011). More evidence of bias in the differential timeliness measure of conditional conservatism. *The Accounting Review*, *86*(5), 1765-1793.

Pritchard, A. (2009). Testimony before the Committee on the Judiciary, Subcommittee on Crime and Drugs United States Senate. Evaluating S. 1551: The Liability for Aiding and Abetting Securities Violations Act of 2009.

Pritchard, A. C., & Sale, H. A. (2005). What counts as fraud? An empirical study of motions to dismiss under the Private Securities Litigation Reform Act. *Journal of Empirical Legal Studies*, *2*(1), 125-149.

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.

Rogers, J. L., & Van Buskirk, A. (2009). Shareholder litigation and changes in disclosure behavior. *Journal of accounting and economics*, *47*(1), 136-156.

Ruch, G. W., & Taylor, G. (2015). Accounting conservatism: A review of the literature. *Journal of Accounting Literature*, *34*, 17-38.

Skinner, D. J. (1994). Why Firms Voluntarily Disclose Bad News. *Journal of Accounting Research, 32(1),* 38-60.

Skinner, D. J. (1997). Earnings disclosures and stockholder lawsuits. *Journal of accounting and economics*, *23*(3), 249-282.

Steele, L. B. (2011). On the Asymmetric Timeliness of Operating Cash Flows. *Unpublished Working Paper. Eller College of Management, University of Arizona.*

Sterling, R. R. (1970). Theory of the measurement of enterprise income. *University Press of Kansas.*

Taylor, L. A. (2010). Why are CEOs rarely fired? Evidence from structural estimation. *The Journal of finance*, *65*(6), 2051-2087.

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), 287-301.

Watts, R. L., & Zimmerman, J. L. (1986). Positive accounting theory.

Yu, F. F. (2008). Analyst coverage and earnings management. *Journal of financial economics*, *88*(2), 245-271.

Table 4.1

Descriptive Statistics

The table presents descriptive statistics for variables used to test the hypotheses.

Panel A: Descriptive statistics for all firms

Variable	N	Mean	Std. Dev	P25	Median	P75
EARN	29288	0.004	0.190	-0.024	0.040	0.080
RET	31050	0.148	0.699	-0.293	0.010	0.375
DRET	31050	0.491	0.500	0.000	0.000	1.000
CSCORE	28451	0.123	0.109	0.065	0.118	0.168
SIZE	31240	5.116	1.976	3.659	4.964	6.420
ROA	30939	0.022	0.146	-0.022	0.040	0.095
FIRMAGE	31205	4.457	1.218	3.738	4.564	5.347
MB	30499	3.217	3.961	1.178	2.025	3.590
STDRET	29251	0.165	0.081	0.106	0.149	0.204
LEV	31222	0.220	0.206	0.026	0.184	0.352
ALTMAN_Z	30531	6.102	7.968	2.451	3.863	6.364
BIG_4	31295	0.830	0.375	1.000	1.000	1.000

Panel B: Descriptive statistics for Circuit 9 firms (treatment sample) and non-Circuit 9 firms (control samples)

	Circuit 9 (N=5740)		Non Circuit 9 (N=25,616)			
Variable	Mean	Median	Mean	Median	Diff in Mean	
EARN	-0.004	0.027	0.006	0.042	0.090	**
RET	0.206	0.000	0.135	0.011	-0.07	***
DRET	0.498	0.000	0.489	0.000	-0.009	
CSCORE	0.114	0.111	0.125	0.120	0.011	***
SIZE	5.130	4.955	5.113	4.967	-0.018	
ROA	0.015	0.036	0.024	0.041	0.009	***
FIRMAGE	4.350	4.431	4.481	4.595	0.131	***
MB	3.762	2.331	3.094	1.971	-0.667	***
STDRET	0.191	0.177	0.159	0.143	-0.032	***
LEV	0.171	0.093	0.231	0.203	0.060	***
ALTMAN_Z	7.596	4.551	5.764	3.747	-1.832	***
BIG_4	0.881	1.000	0.819	1.000	-0.062	***

EARN is net income before extraordinary items (IB), scaled by lagged market value of equity (CSHO * PRCC_F); RET is the fiscal year return measured by twelve-month buy-and-hold returns from fiscal year-end t-1 to fiscal year-end t; DRET is a dummy variable set to one if stock returns RET are negative, and zero otherwise; CSCORE is the firm-year measure of conservatism based on Khan and Watts (2009); SIZE is firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year; ROA is the return on assets, calculated as Net income (NI) divided by average total assets (AT) of the firm; FIRMAGE is the natural logarithm of the age of firm at the end of the year, measured as the number of years the firm has been listed in the Center for Research in Security Prices (CRSP); MB is firm’s market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year; STDRET is stock return volatility, measured by the daily stock return volatility during the prior year; LEV is firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity; ALTMAN_Z is Altman's Z-score, measured in year t, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets); BIG_4 is an indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise. All continuous variables are winsorised at the top and bottom 1%.

Table 4.2

Pearson correlation matrix for variables used to test the hypotheses

	CSCORE	SIZE	ROA	FIRMAGE	MB	STDRET	LEV	ALTMAN_Z	BIG_4
CSCORE	1								
SIZE	-0.576***	1							
ROA	-0.176***	0.269***	1						
FIRMAGE	-0.061***	0.188***	0.061***	1					
MB	-0.337***	0.287***	0.030***	-0.115***	1				
STDRET	0.187***	-0.324***	-0.317***	-0.316***	0.130***	1			
LEV	0.371***	-0.018***	-0.109***	0.066***	-0.020***	-0.138***	1		
ALTMAN_Z	-0.262***	0.171***	0.196***	-0.164***	0.372***	0.111***	-0.420***	1	
BIG_4	-0.099***	0.282***	0.019***	0.046***	0.023***	-0.100***	0.006	0.005	1

This table presents the Pearson correlation matrix for the sample of 33,527 firm-year observations across fiscal year 1995-2002. All continuous variables are winsorised at the top and bottom 1%. All variables are defined as Appendix 3. ***, **, * indicate significance at 1%, 5%, and 10% levels in a two-tailed test, respectively.

Table 4.3

Regression results for the impact of the SGI decision on conservatism

This table presents regression results for the impact of the SGI decision on conservatism in U.S firms.

$$CSCORE = \eta_0 + \eta_1\ C9FIRM + \eta_2\ POST + \eta_3 C9FIRM * POST + Control\ Variables + Industry\ Dummies + Year\ Dummies + \varepsilon \quad (5)$$

CSCORE is the firm-year measure of conservatism based on Khan and Watts (2009); C9FIRM is a dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise; POST is a dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002; SIZE is firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year; ROA is the return on assets; FIRMAGE is the natural logarithm of the age of firm at the end of the year, measured as the number of years the firm has been listed in the Center for Research in Security Prices (CRSP); MB is firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year; STDRET is stock return volatility, measured by the daily stock return volatility during the prior year; LEV is firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity; ALTMAN_Z is Altman's Z-score; BIG_4 is an indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise. All continuous variables are winsorised at the top and bottom 1%. Robust standard errors are corrected for clustering by firm. Figures in parentheses are *p*-values. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

	CSCORE	
Dependent variables	Without control	With control
Constant	0.135***	0.197***
	(<0.001)	(<0.001)
C9FIRM	-0.005*	0.005***
	(0.056)	(<0.001)
POST	0.048***	0.059***
	(<0.001)	(<0.001)
C9FIRM * POST	-0.010***	-0.008***
	(0.003)	(<0.001)
SIZE		-0.030***
		(<0.001)
ROA		0.021***
		(<0.001)
FIRMAGE		0.002***
		(0.001)
MB		-0.005***
		(<0.001)
STDRET		0.028***
		(0.002)
LEV		0.219***
		(<0.001)
ALTMAN_Z		0.001***
		(<0.001)
BIG_4		0.004***
		(0.001)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	28,285	27,925
Adj. R^2	15.7%	63.4%

Table 4.4

Effects of other conservatism demand on the relation between the SGI decision and conservatism

This table presents regression results for the effects of other conservatism demand on the relation between the SGI decision and conservatism in U.S firms.

$$CSCORE = \eta_0 + \eta_1\ C9FIRM + \eta_2\ POST + \eta_3 C9FIRM * POST + Control\ Variables + Industry\ Dummies + Year\ Dummies + \varepsilon \quad (5)$$

CSCORE is the firm-year measure of conservatism based on Khan and Watts (2009); C9FIRM is a dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise; POST is a dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002; SIZE is firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year; ROA is the return on assets, calculated as Net income (NI) divided by average total assets (AT) of the firm; FIRMAGE is the natural logarithm of the age of firm at the end of the year, measured as the number of years the firm has been listed in the Center for Research in Security Prices (CRSP); MB is firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year; STDRET is stock return volatility, measured by the daily stock return volatility during the prior year; LEV is firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity; ALTMAN_Z is Altman's Z-score, measured in year t, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets); BIG_4 is an indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise. All continuous variables are winsorised at the top and bottom 1%. Robust standard errors are corrected for clustering by firm. Figures in parentheses are *p*-values. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

Dependent variables	(1) High INSTOWN	(2) Low INSTOWN	(3) High LITICOST	(4) Low LITICOST	(5) High REGUCOST	(6) Low REGUCOST	(7) High TAXCOST	(8) Low TAXCOST
Constant	0.206***	0.193***	0.180***	0.197***	0.236***	0.194***	0.216***	0.181***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
C9FIRM	0.002	0.007***	0.008***	0.004***	-0.000	0.006***	0.002	0.004*
	(0.105)	(0.001)	(<0.001)	(0.002)	(0.897)	(<0.001)	(0.336)	(0.081)
POST	0.046***	0.071***	0.053***	0.070***	0.057***	0.059***	0.041***	0.056***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
C9FIRM * POST	-0.007***	-0.009**	-0.014***	-0.005**	-0.008**	-0.006**	-0.006**	-0.014***
	(0.003)	(0.021)	(<0.001)	(0.034)	(0.027)	(0.033)	(0.033)	(<0.001)
SIZE	-0.030***	-0.030***	-0.024***	-0.033***	-0.036***	-0.031***	-0.028***	-0.031***

	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
ROA	0.017***	0.015***	0.034***	0.020***	0.024**	0.019***	0.025**	0.015*
	(<0.001)	(0.004)	(<0.001)	(<0.001)	(0.020)	(<0.001)	(0.011)	(0.056)
FIRMAGE	0.001*	0.003***	0.002**	0.002***	0.003***	0.001**	0.002	0.001
	(0.065)	(0.001)	(0.024)	(0.002)	(0.001)	(0.020)	(0.136)	(0.559)
MB	-0.004***	-0.006***	-0.010***	-0.003***	-0.004***	-0.006***	-0.005***	-0.006***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
STDRET	0.021*	0.031***	0.039**	0.018**	0.090***	0.026***	0.048***	0.033*
	(0.072)	(0.009)	(0.013)	(0.047)	(0.002)	(0.003)	(0.009)	(0.081)
LEV	0.177***	0.252***	0.280***	0.194***	0.231***	0.209***	0.201***	0.242***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
ALTMAN_Z	0.001***	0.001***	0.001***	0.001***	0.002***	0.001***	0.001***	0.001***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
BIG_4	0.003**	0.006***	-0.003	0.002	-0.001	0.005***	0.001	0.007***
	(0.032)	(0.001)	(0.220)	(0.142)	(0.620)	(0.003)	(0.531)	(0.009)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,852	13,108	8,552	20,670	8,921	20,301	8,263	8,149
Adj. R^2	66.5%	52.7%	59.7%	66.2%	65.8%	59.2%	65.8%	64.5%

Table 4.5

Regression results after controlling for the confounding effects of other events

This table presents regression results for the impact of the SGI decision on conservatism in U.S firms after controlling for the confounding effects of other events.

$$CSCORE = \eta_0 + \eta_1\ C9FIRM + \eta_2\ POST + \eta_3 C9FIRM * POST + Control\ Variables + Industry\ Dummies + Year\ Dummies + \varepsilon \quad (5)$$

CSCORE is the firm-year measure of conservatism based on Khan and Watts (2009); C9FIRM is a dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise; POST is a dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002; SIZE is firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year; ROA is the return on assets, calculated as Net income (NI) divided by average total assets (AT) of the firm; FIRMAGE is the natural logarithm of the age of firm at the end of the year, measured as the number of years the firm has been listed in the Center for Research in Security Prices (CRSP); MB is firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year; STDRET is stock return volatility, measured by the daily stock return volatility during the prior year; LEV is firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity; ALTMAN_Z is Altman's Z-score, measured in year t, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets); BIG_4 is an indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise. All continuous variables are winsorised at the top and bottom 1%. Robust standard errors are corrected for clustering by firm. Figures in parentheses are *p*-values. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

	(1)	(2)	(3)
Dependent variables	Non-Nevada	Non-Delaware	3 Years' event window
Constant	0.196***	0.196***	0.188***
	(<0.001)	(<0.001)	(<0.001)
C9FIRM	0.006***	0.005***	0.006***
	(<0.001)	(<0.001)	(<0.001)
POST	0.058***	0.059***	0.096***
	(<0.001)	(<0.001)	(<0.001)
C9FIRM * POST	-0.010***	-0.008***	-0.009***
	(<0.001)	(<0.001)	(<0.001)
SIZE	-0.030***	-0.030***	-0.030***
	(<0.001)	(<0.001)	(<0.001)
ROA	0.021***	0.021***	0.020***
	(<0.001)	(<0.001)	(<0.001)
FIRMAGE	0.002***	0.002***	0.001**
	(<0.001)	(0.001)	(0.038)
MB	-0.005***	-0.005***	-0.004***
	(<0.001)	(<0.001)	(<0.001)
STDRET	0.031***	0.028***	0.028***
	(<0.001)	(0.002)	(0.004)

LEV	0.216***	0.219***	0.221***
	(<0.001)	(<0.001)	(<0.001)
ALTMAN_Z	0.001***	0.001***	0.001***
	(<0.001)	(<0.001)	(<0.001)
BIG_4	0.005***	0.004***	0.004***
	(<0.001)	(0.001)	(0.004)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Observations	27,681	27,826	21,598
Adj. R^2	63.6%	63.4%	62.7%

Table 4.6

Regression results after controlling for the confounding effects of earnings management

This table presents regression results for the impact of the SGI decision on conservatism in U.S firms after controlling for the confounding effects of earnings management.

$$CSCORE = \eta_0 + \eta_1\, C9FIRM + \eta_2\, POST + \eta_3 C9FIRM * POST + Control\ Variables + Industry\ Dummies + Year\ Dummies + \varepsilon \quad (5)$$

CSCORE is the firm-year measure of conservatism based on Khan and Watts (2009); C9FIRM is a dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise; POST is a dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002; SIZE is firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year; ROA is the return on assets, calculated as Net income (NI) divided by average total assets (AT) of the firm; FIRMAGE is the natural logarithm of the age of firm at the end of the year, measured as the number of years the firm has been listed in the Center for Research in Security Prices (CRSP); MB is firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year; STDRET is stock return volatility, measured by the daily stock return volatility during the prior year; LEV is firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity; ALTMAN_Z is Altman's Z-score, measured in year t, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets); BIG_4 is an indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise. All continuous variables are winsorised at the top and bottom 1%. Robust standard errors are corrected for clustering by firm. Figures in parentheses are *p*-values. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	High BEATMEET	Low BEATMEET	High SUSPECT	Low SUSPECT	High AVOIDDEC	Low AVOIDDEC
Constant	0.219***	0.214***	0.120***	0.198***	0.226***	0.195***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(<0.001)
C9FIRM	0.006**	0.005***	0.021*	0.005***	0.003	0.006***
	(0.038)	(0.001)	(0.051)	(<0.001)	(0.230)	(<0.001)
POST	0.052***	0.053***	0.092***	0.058***	0.038***	0.059***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
C9FIRM * POST	-0.010***	-0.008***	-0.035*	-0.008***	-0.007*	-0.009***
	(0.006)	(0.002)	(0.093)	(<0.001)	(0.051)	(<0.001)
SIZE	-0.027***	-0.030***	-0.033***	-0.030***	-0.028***	-0.030***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
ROA	0.002	0.019***	5.459	0.021***	-0.005	0.022***
	(0.856)	(<0.001)	(0.107)	(<0.001)	(0.705)	(<0.001)
FIRMAGE	0.001	0.001	0.005	0.002***	0.000	0.002***
	(0.296)	(0.143)	(0.288)	(0.001)	(0.585)	(0.002)
MB	-0.004***	-0.005***	-0.009***	-0.005***	-0.004***	-0.005***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(<0.001)
STDRET	-0.000	0.016	-0.013	0.030***	-0.005	0.033***
	(0.996)	(0.124)	(0.862)	(<0.001)	(0.769)	(<0.001)
LEV	0.135***	0.188***	0.355***	0.215***	0.125***	0.226***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
ALTMAN_Z	0.000***	0.001***	0.002**	0.001***	0.001***	0.001***

	(0.008)	(<0.001)	(0.046)	(<0.001)	(0.002)	(<0.001)
BIG_4	-0.002	0.004***	0.036***	0.004***	0.003	0.005***
	(0.536)	(0.006)	(0.001)	(0.006)	(0.270)	(0.001)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,195	17,155	609	27,321	3,154	24,771
Adj. R^2	72.3%	64.8%	54.3%	63.9%	74.3%	61.5%

Table 4.7

Regression results after controlling for the confounding effects of external monitors

This table presents regression results for the impact of the SGI decision on conservatism in U.S firms after controlling for the confounding effects of external monitors.

$$CSCORE = \eta_0 + \eta_1\ C9FIRM + \eta_2\ POST + \eta_3 C9FIRM * POST + Control\ Variables + Industry\ Dummies + Year\ Dummies + \varepsilon \quad (5)$$

CSCORE is the firm-year measure of conservatism based on Khan and Watts (2009); C9FIRM is a dichotomous variable equal to one for firms headquartered within the Ninth Circuit, and zero otherwise; POST is a dichotomous variable equal to one for the pre-ruling period defined as 1995 to 1998 and zero for the post-ruling period of 1999-2002; SIZE is firm size, measured as the natural log of market value of equity (CSHO * PRCC_F) measured at the end of the year; ROA is the return on assets, calculated as Net income (NI) divided by average total assets (AT) of the firm; FIRMAGE is the natural logarithm of the age of firm at the end of the year, measured as the number of years the firm has been listed in the Center for Research in Security Prices (CRSP); MB is firm's market-to-book ratio, calculated as the ratio of the market value of equity (CSHO * PRCC_F) to the book value of equity (CEQ) at the end of the year; STDRET is stock return volatility, measured by the daily stock return volatility during the prior year; LEV is firms' leverage, calculated as total debt (DLTT + DLC) scaled by market value of equity; ALTMAN_Z is Altman's Z-score, measured in year t, and equals 1.2 × (Net working capital/Total assets) + 1.4 × (Retained earnings/Total assets) + 3.3 × (Earnings before interest and taxes/Total assets) + 0.6 × (Market value of equity/Book value of liabilities) + 1.0 × (Sales/Total assets); BIG_4 is an indicator variable that equals one if the engaging auditor of the financial report ending in the year for the firm is one of the Big-4 auditing firms, and zero otherwise. All continuous variables are winsorised at the top and bottom 1%. Robust standard errors are corrected for clustering by firm. Figures in parentheses are *p*-values. *** (**, *) indicates significance at the 1% (5%, 10%) level for two-tailed test.

	(1)	(2)	(3)	(4)
Dependent variables	High COVERAGE	Low COVERAGE	High ALTMAN_Z	Low ALTMAN_Z
Constant	0.208***	0.200***	0.209***	0.184***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
C9FIRM	0.004**	0.007***	0.003***	0.005**
	(0.025)	(<0.001)	(0.006)	(0.047)
POST	0.050***	0.054***	0.048***	0.070***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
C9FIRM * POST	-0.009***	-0.010***	-0.003*	-0.013***
	(<0.001)	(0.006)	(0.067)	(0.005)
SIZE	-0.027***	-0.029***	-0.027***	-0.033***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
ROA	0.014***	0.013***	0.007**	0.024***
	(0.007)	(0.004)	(0.029)	(<0.001)
FIRMAGE	0.000	0.001	0.000	0.004***
	(0.571)	(0.112)	(0.923)	(<0.001)
MB	-0.004***	-0.005***	-0.004***	-0.006***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
STDRET	-0.003	0.026*	0.019**	0.024

	(0.770)	(0.055)	(0.012)	(0.114)
LEV	0.140***	0.222***	0.110***	0.259***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
ALTMAN_Z	0.001***	0.001***		
	(<0.001)	(<0.001)		
BIG_4	0.001	0.004**	0.000	0.007***
	(0.387)	(0.029)	(0.803)	(0.002)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	9,531	10,532	13,938	13,987
Adj. R^2	69.7%	55.5%	76.8%	56.6%

CHAPTER FIVE

CONCLUDING REMARKS

5.1 Introduction

The evidence provided in the three self-contained research papers included in this thesis adds to the literature of cash flow forecasts and the asymmetric timeliness of accounting information. Specifically, Paper 1 (Chapter Two) examines analysts' cash flow forecasts in the Australian setting by exploring the factors affecting the issuance, accuracy and usefulness of the cash flow forecasts in Australia. Paper 2 (Chapter Three) considers the driving factors behind cash flow asymmetry by proposing and examining two new explanations for cash flow asymmetry based on sticky cost behaviours and conservatism demands. Using an unexpected U.S. court ruling decision as a exogenous shock, Paper 3 (Chapter Four) investigates the differential post-ruling changes in financial reporting conservatism between firms headquartered in states within the Ninth Circuit (treatment firms) and firms headquartered in states outside the Ninth Circuit (control firms), and thereby establishes a causal link between litigation risk and accounting conservatism.

The remainder of this chapter is organized as follows. The summary of findings from each of the three papers is presented in Section 5.2, followed by a discussion of the overall implications in Section 5.3. The limitations of the thesis together with suggestions for future research are discussed in Section 5.4.

5.2 Summary of Findings

5.2.1 Paper 1: Australian evidence on analysts' cash flow forecasts: issuance, accuracy and usefulness

Motivated by the distinctiveness of the Australian setting with the dominance of mining firms listed on the Australian Securities Exchange, the adoption of International Financial Reporting Standards (IFRS) and the prevalence of the direct method to prepare cash flow statements among Australian firms, this paper provides evidence of the factors affecting the issuance and accuracy of CFFs and the usefulness of CFFs in the Australia context.

Specifically, the study finds that the considerable increase in the provision of analysts' CFFs in the Australian market is driven by both demand- and supply-side factors. These findings highlight the importance of considering factors on both demand- and supply-sides as well as the institutional structure of the market when investigating the driving force behind the provision of CFFs. Additionally, given the economic importance of the mining industry in Australia, the results reveal that analysts are likely to provide CFFs to mining firms with poor financial health and high default risk because investors have particular concerns about mining firms' distress risk. In contrast, analysts' provision of CFFs increases with non-mining firms which remain in sound financial health. The determinants of the issuance and accuracy of analysts' CFFs also differ in the periods before and after the adoption of IFRS. The results add new evidence on the effect of the adoption of IFRS on analysts' cash flow forecasting behaviours.

The study also investigates the factors influencing the accuracy of analyst cash flow forecasts. The results show that the accuracy of analysts' CFFs is jointly determined by analyst, forecasting and firm characteristics. Consistent with prior studies, the accuracy of analysts' CFFs is positively associated with analysts' cash flow-specific forecasting experience and the size of brokerage houses and is negatively associated with the number of firms which analysts follow, as well as with forecast horizon and dispersion. In addition, I find that analysts following more industries and working for larger brokerage houses have more accurate cash flow forecasts and that this effect is only pronounced in the post-IFRS period. The results suggest that the adoption of IFRS changes the information environment and analysts' abilities to predict future performance (Benson et al., 2015; Byard et al., 2011;

Chalmers et al., 2012; Chang et al., 2017; Cotter et al., 2012; Horton et al., 2013; Linnenluecke et al., 2017).

Finally, the study examines the usefulness of CFFs to investors and analysts in Australia. Unlike previous research, it compares analysts' ability to forecast cash flows to the forecasts produced by time-series models. It also investigates whether the provision of CFFs helps analysts better understand a full set of financial statements and improve their accuracy in earnings forecasts. The results show that analysts' CFFs are significantly more accurate than the forecasts generated from time-series models and that analysts' earnings forecast accuracy is improved with the presence of CFFs. The superiority of the accuracy of analysts' earnings forecast when they also issue CFFs can be attributed to analysts' having a better understanding of a full set of financial statements and earnings components, as analysts take a structured approach to forecast cash flows.

5.2.2 Paper 2: Economic determinants of cash flow asymmetric timeliness

Despite an increasing significance attached by investors and the public to reported CFO during the last decade, the factors driving CFO asymmetry have received little attention to date. The explanations documented in extant literature (e.g. Collins et al., 2014; Steel, 2011) have largely ignored the governance role played by various stakeholders within and outside the firm. In addition, prior studies provide mixed evidence and test their proposed explanations without controlling for alternative explanations. To fill this gap, Paper 2 proposes two new explanations for CFO asymmetry, and examines the different possible determinants of CFO asymmetry.

The study finds consistent evidence that sticky cost behaviours lead to a higher degree of CFO asymmetry. It also finds evidence supporting several demands for conservatism which can induce CFO asymmetry. In particular, the degree of CFO asymmetry is found to be positively associated with the demand for conservatism relating to equity contracting, litigation and taxation. In addition, the empirical evidence supports the firm life cycle explanation (Collins et al., 2014), but it is inconsistent with the product pricing explanation (Steele, 2011). The results continue to hold when these explanations of CFO asymmetry are tested jointly. Nevertheless, the results also indicate that these explanations in combination can better explain CFO asymmetry, but they cannot fully unravel the degree of CFO asymmetric timeliness, thereby calling for future research.

5.2.3 Paper 3: Accrual-based choice or operating activities: A re-examination of contracting demand for conservatism

Given the difficulty in establishing the causal link between litigation risk and accounting conservatism, Paper 3 employs a difference-in-differences research design, which is centred on a U.S. court decision that reduced the risk of securities class actions for firms headquartered in states within the Ninth Circuit, to examine whether the unexpected change in the risk of securities class actions affects firms' conservative financial reporting practices.

The results show that in the period immediately following the court ruling, the degree of accounting conservatism decreases after the resulting decline in the risk of securities class actions for treatment firms relative to control firms. Such decreases are significant both economically and statistically. The results indicate that, in response to the lowered litigation risk, directors and managers of firms subject to the court ruling decision tend to adopt less conservative financial reporting. This suggests that the threat of litigation risk plays an important role in monitoring a firm's financial reporting. The study further explores the impacts of a range of cross-sectional variations on the observed causal relationship to ensure that the main finding arises from a change in firms' reporting behaviour in response to the law change rather than other confounding events that directly impact conservatism. Overall, the results of these tests provide further support for the main hypothesis that the threat of securities class actions directly affects the level of conservatism.

5.3 Implications

The findings of this thesis have several important implications for investors, analysts, accounting standard setters and regulators. First, it delivers important messages to financial analysts and investors who heavily rely on cash flow information for making investment decisions. In particular, the evidence, as documented in Paper 1, on the factors affecting the issuance, accuracy and usefulness of analysts' cash flow forecasts in the Australian context helps investors make informed decisions and assess the capability of financial analysts and the usefulness of CFFs. Analysts also benefit from knowing the quality of their research output.

Moreover, the results in Paper 1 should be of interest to both academics and market participants who are interested in evaluating analysts' CFFs in Australia. In particular, by documenting the superiority of analysts' CFFs over the forecasts produced by time-series models and analysts' improved ability to predict future earnings arising from their provision of CFFs in Australia, Paper 1 corroborates the incremental value of the issuance of CFFs in addition to earnings forecasts and thus provides new evidence on the ongoing debate regarding the usefulness of CFFs. Furthermore, the findings in Paper 2 shed light on the presence and causes of the attributes (asymmetric timeliness) of CFO and earnings. Since cash flows are the key inputs in the valuation models, CFO asymmetry is therefore of particular importance for financial analysts to improve the forecasting accuracy of cash flows when conducting asset pricing and security valuations.

Second, the findings from Paper 1 add to the debate on the merits of the presentation of cash flow statement using the direct method. Given that direct method cash flow disclosures are informative in predicting future earnings and cash flows and that most Australian firms use the direct method to prepare their cash flow statements, the results in the first paper show that the superiority of analysts' CFFs over the forecasts produced by time-series models and analysts' earnings forecast accuracy is improved when they also issue CFFs. These results will be welcomed by the Australian Accounting Standard Board, one of the few accounting standard setters in the world which had previously required and now encourages cash flow statements to be presented using the direct method.

Finally, the findings of this thesis have implications for regulators. There exists an ongoing debate on whether the threat of litigation can effectively benefit securities markets through disciplining self-interested managers and mitigating agency conflicts. By demonstrating that lowering firms' litigation risk influences their financial reporting behaviour and, in particular, leads to a lower level of conditional conservatism, Paper 3 sheds light on the important role of the threat imposed by litigation risk in corporate governance. Specifically, this finding suggests that the threat of shareholder litigation can effectively discipline managerial reporting practices. As such, this evidence informs the debate about the role of securities class actions in regulating securities markets and in mitigating agency conflicts.

5.4 Limitations and Future Research

The findings presented in this thesis are subject to a number of limitations, and also act as a precursor to future avenues of research. First, the conservatism measures used in Paper 2 and 3 are based on the Basu (1997) approach to measuring asymmetric timeliness of earnings. However, several recent studies argue that the Basu (1997) methodology of measuring the asymmetric timeliness of earnings is fraught with severe measurement errors. For example, Givoly et al. (2007, p.66-67) state the following:

> *Our conclusion is that inferences regarding the variation of conservatism across firms, time periods, countries or reporting regimes cannot be reliably made based on the [earnings] DT measure without controlling for certain characteristics of the information and disclosure environments of the compared samples.*

Patatoukas and Thomas (2011) attribute the substantial bias in earnings asymmetric timeliness to two empirical regularities related to scale, namely the negative relation between scale (i.e. price) and return variances (return variance effect) and the negative relation between the probability of reporting a loss (loss effect).

Proponents of conservatism research argue that there is compelling economics-based theory to support the presence of conditional conservative reporting (asymmetric timely loss recognition of earnings). They posit that measurement errors in the asymmetric timeliness of earnings estimated from the Basu (1997) approach can be identified and controlled for, permitting valid and reliable inferences to be drawn (Ball et al., 2013a, 2013b; Khan & Watts, 2009). In addition, Collins et al. (2014) examine the robustness of the presence of CFO asymmetry to potential measurement errors identified in previous studies. They find that, distinct from earnings asymmetric timeliness, CFO asymmetry is much less likely to be affected by the identified measurement errors and thus is more robust.

Second, the results of Paper 2 and 3 may not be generalizable outside the United States since other countries may have unique institutional environments. In comparison with the United States, these countries may have institutional differences in market structures, litigation environments and tax regimes. For example, as discussed in Paper 1, in Australia, around 40% of listed firms are within the mining industry, which is markedly different from other countries, including the United States. Such differences, as documented by Bushman and Piotroski (2006), lead to differential incentives affecting the behaviour of both internal managers and external parties such as investors, regulators and other market participants, thereby ultimately resulting in differences in the attributes of reported accounting data. This is further supported by evidence obtained by Ball et al. (2000). By investigating the degree of asymmetry timeliness across seven countries, they find that countries under the common-law system have higher degrees of earnings asymmetric timeliness than countries under the code-law system due to differential litigation and regulatory costs. Consistent with this view, the findings in Paper 1 also highlight the importance of considering the institutional structure of the market when investigating the driving force behind the provision of CFFs. Therefore, future research may investigate the role played by the threat of litigation in influencing firms' reporting practices in other settings with institutional environments that substantially differ from those of the United States.

FULL REFERENCES

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of finance, 62*(1), 217-250.

Ahmed, A. S., Nainar, S. K., & Zhang, X. F. (2006). Further evidence on analyst and investor misweighting of prior period cash flows and accruals. *The International Journal of Accounting, 41*(1), 51-74.

Alexander, J. C. (1991). Do the Merits Matter? A Study of Settlements in Securities Class Actions. *Stanford law review*, 497-598.

Anderson, M. C., Banker, R. D., & Janakiraman, S. N. (2003). Are Selling, General, and Administrative Costs "Sticky"? *Journal of Accounting Research, 41*(1), 47-63.

Anthony, J. H., & Ramesh, K. (1992). Association between accounting performance measures and stock prices: A test of the life cycle hypothesis. *Journal of accounting and economics, 15*(2-3), 203-227.

Armstrong, C. S., Guay, W. R., & Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of accounting and economics, 50*(2-3), 179-234.

Atwood, T., Drake, M. S., Myers, J. N., & Myers, L. A. (2011). Do earnings reported under IFRS tell us more about future earnings and cash flows? *Journal of Accounting and Public Policy, 30*(2), 103-121.

Badertscher, B. A., Phillips, J. D., Pincus, M., & Rego, S. O. (2009). Earnings management strategies and the trade-off between tax benefits and detection risk: To conform or not to conform? *The Accounting Review, 84*(1), 63-97.

Baginski, S., Hassell, J., & Kimbrough, M. D. (2002). The effect of legal environment on voluntary disclosure: Evidence from management earnings forecasts issued in US and Canadian markets. *Account. Rev., 77*(1), 25-50.

Ball, R., Kothari, S. P., & Nikolaev, V. V. (2013a). Econometrics of the Basu Asymmetric Timeliness Coefficient and Accounting Conservatism. *Journal of Accounting Research, 51*(5), 1071-1097.

Ball, R., Kothari, S. P., & Nikolaev, V. V. (2013b). On estimating conditional conservatism. *The Accounting Review, 88*(3), 755-787.

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

Ball, R., Robin, A., & Sadka, G. (2005). *Is accounting conservatism due to debt or share markets? A test of "contracting" versus "value relevance" theories of accounting*.

Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies, 13*(2-3), 168-205.

Ball, R., Robin, A., & Wu, J. S. (2003). Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics, 36*(1), 235-270.

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: comparative loss recognition timeliness. *Journal of Accounting and Economics, 39*(1), 83-128.

Ballotti, R. F., & Gentile, M. J. (1987). Elimination or Limitation of Director Liability for Delaware Corporations. *Del. J. Corp. L., 12*, 5.

Banker, R. D., Basu, S., Byzalov, D., & Chen, J. Y. (2013). The Confounding Effect of Cost Stickiness in Conservatism Research. *Working paper. Fox School of Business, Temple University.*

Banker, R. D., Basu, S., Byzalov, D., & Chen, J. Y. (2016). The confounding effect of cost stickiness on conservatism estimates. *Journal of accounting and economics, 61*(1), 203-220.

Banker, R. D., Byzalov, D., & Chen, L. T. (2013). Employment protection legislation, adjustment costs and cross-country differences in cost behavior. *Journal of accounting and economics, 55*(1), 111-127.

Barth, M. E., Cram, D. P., & Nelson, K. K. (2001). Accruals and the prediction of future cash flows. *The Accounting Review, 76*(1), 27-58.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings 1. *Journal of Accounting and Economics, 24*(1), 3-37.

Beaver, W. H., & Ryan, S. G. (2005). Conditional and Unconditional Conservatism:Concepts and Modeling. *Review of Accounting Studies, 10*(2-3), 269-309.

Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1-24.

Begley, J., & Freedman, R. (2004). The changing role of accounting numbers in public lending agreements. *Accounting Horizons, 18*(2), 81-96.

Benson, K., Clarkson, P. M., Smith, T., & Tutticci, I. (2015). A review of accounting research in the Asia Pacific region. *Australian Journal of Management, 40*(1), 36-88.

Bhojraj, S., & Sengupta, P. (2003). Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors. *The Journal of Business, 76*(3), 455-475.

Bhushan, R. (1989). Firm characteristics and analyst following. *Journal of accounting and economics, 11*(2), 255-274.

Bilinski, P. (2014). Do analysts disclose cash flow forecasts with earnings estimates when earnings quality is low? *Journal of Business Finance & Accounting, 41*(3-4), 401-434.

Billings, M., Klein, A., & Zur, E. (2012). Shareholder Class Action Suits and the Bond Market.

Blinder, A., Canetti, E. R., Lebow, D. E., & Rudd, J. B. (1998). Asking about prices: a new approach to understanding price stickiness: *Russell Sage Foundation.*

Bond, D., Bugeja, M., & Czernkowski, R. (2012). Did Australian firms choose to switch to reporting operating cash flows using the indirect method? *Australian Accounting Review, 22*(1), 18-24.

Bradley, M., & Schipani, C. A. (1989). The relevance of the duty of care standard in corporate governance. *Iowa L. Rev., 75*, 1.

Bradshaw, M. T., Richardson, S. A., & Sloan, R. G. (2001). Do analysts and auditors use information in accruals? *Journal of Accounting Research, 39*(1), 45-74.

Bushman, R. M., & Piotroski, J. D. (2006). Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of accounting and economics, 42*(1), 107-148.

Bushman, R. M., Piotroski, J. D., & Smith, A. J. (2011). Capital allocation and timely accounting recognition of economic losses. *Journal of Business Finance & Accounting, 38*(1-2), 1-33.

Byard, D., Li, Y., & Yu, Y. (2011). The effect of mandatory IFRS adoption on financial analysts' information environment. *Journal of Accounting Research, 49*(1), 69-96.

Call, A. C., Chen, S., & Tong, Y. H. (2009). Are analysts' earnings forecasts more accurate when accompanied by cash flow forecasts? *Review of Accounting Studies, 14*(2-3), 358-391.

Call, A. C., Chen, S., & Tong, Y. H. (2013). Are analysts' cash flow forecasts naïve extensions of their own earnings forecasts? *Contemporary Accounting Research, 30*(2), 438-465.

Cazier, R. A., Christensen, T. E., Merkley, K. J., & Treu, J. (2017). Litigation Risk and Non-GAAP Reporting. *Working paper.*

Chalmers, K., Clinch, G., Godfrey, J. M., & Wei, Z. (2012). Intangible assets, IFRS and analysts' earnings forecasts. *Accounting & Finance, 52*(3), 691-721.

Chang, M., Jackson, A. B., & Wee, M. (2017). A review of research on regulation changes in the Asia-Pacific region. *Accounting & Finance*.

Chang, X., Dasgupta, S., & Hilary, G. (2006). Analyst Coverage and Financing Decisions. *Journal of Finance, 61*(6), 3009-3048.

Chen, S., & Matsumoto, D. A. (2006). Favorable versus unfavorable recommendations: The impact on analyst access to management-provided information. *Journal of Accounting Research, 44*(4), 657-689.

Cheng, M., & Subramanyam, K. (2008). Analyst Following and Credit Ratings*. *Contemporary Accounting Research, 25*(4), 1007-1044.

Choi, S. J. (2004). The evidence on securities class actions. *Vand. L. Rev., 57*, 1465.

Chung, H. H., & Wynn, J. P. (2008). Managerial legal liability coverage and earnings conservatism. *Journal of accounting and economics, 46*(1), 135-153.

Chung, K. H., & Jo, H. (1996). The impact of security analysts' monitoring and marketing functions on the market value of firms. *Journal of Financial and Quantitative Analysis, 31*(04), 493-512.

Clement, M. B. (1999). Analyst forecast accuracy: Do ability, resources, and portfolio complexity matter? *Journal of accounting and economics, 27*(3), 285-303.

Clement, M. B., & Tse, S. Y. (2003). Do investors respond to analysts' forecast revisions as if forecast accuracy is all that matters? *The Accounting Review, 78*(1), 227-249.

Clement, M. B., & Tse, S. Y. (2005). Financial analyst characteristics and herding behavior in forecasting. *The Journal of finance, 60*(1), 307-341.

Coffee, J. C., Jr. (2006). Reforming the securities class action: an essay on deterrence and its implementation.(Litigation Reform Since the PSLRA: A Ten-Year Retrospective). *Columbia Law Review, 106*(7), 1534-1586.

Collins, D. W., Hribar, P., & Tian, X. S. (2014). Cash flow asymmetry: Causes and implications for conditional conservatism research. *Journal of accounting and economics, 58*(2-3), 173-200.

Cotter, J., Tarca, A., & Wee, M. (2012). IFRS adoption and analysts' earnings forecasts: Australian evidence. *Accounting & Finance, 52*(2), 395-419.

Cox, J. D., Thomas, R., & Bai, L. (2009). Do differences in pleading standards cause forum shopping in securities class actions?: Doctrinal and empirical analyses. *Wis. Law Rev.*(2), 421-453.

Crane, A. D., & Koch, A. (2016). Shareholder litigation and ownership structure: Evidence from a natural experiment. *Management Science, 64*(1), 5-23.

Darlin, D. (1983). Picking a Loser: Young Analyst Defied 'Experts' and Foresaw Baldwin-United's Ills. *Wall Street Journal*, 1-14.

Das, S., Levine, C. B., & Sivaramakrishnan, K. (1998). Earnings predictability and bias in analysts' earnings forecasts. *Accounting Review*, 277-294.

De Bondt, W. F., & Thaler, R. H. (1990). Do security analysts overreact? *The American Economic Review*, 52-57.

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics, 50*(2), 344-401.

DeFond, M. L., & Hung, M. (2003). An empirical analysis of analysts' cash flow forecasts. *Journal of accounting and economics, 35*(1), 73-100.

DeFond, M. L., & Hung, M. (2007). Investor protection and analysts' cash flow forecasts around the world. *Review of Accounting Studies, 12*(2-3), 377-419.

Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review, 87*(3), 723-759.

Dichev, I. D., & Skinner, D. J. (2002). Large–sample evidence on the debt covenant hypothesis. *Journal of Accounting Research, 40*(4), 1091-1123.

Dickinson, V. (2011). Cash flow patterns as a proxy for firm life cycle. *The Accounting Review, 86*(6), 1969-1994.

Dietrich, J. R., Muller, K., III, & Riedl, E. (2007). Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies, 12*(1), 95-124.

Dunbar, F., Foster, T., Juneja, V., & Martin, D. (1995). Recent Trends III: What Explains Settlements in Securities Class Actions. In: NERA.

Duru, A., & Reeb, D. M. (2002). International Diversification and Analysts' Forecast Accuracy and Bias. *The Accounting Review, 77*(2), 415-433.

Elgers, P. T., Lo, M. H., & Pfeiffer Jr, R. J. (2003). Analysts' vs. investors' weightings of accruals in forecasting annual earnings. *Journal of Accounting and Public Policy, 22*(3), 255-280.

Ertimur, Y., Mayew, W. J., & Stubben, S. R. (2011). Analyst reputation and the issuance of disaggregated earnings forecasts to I/B/E/S. *Review of Accounting Studies, 16*(1), 29-58.

Ertimur, Y., & Stubben, S. (2005). Analysts' incentives to issue revenue and cash flow forecasts. *Unpublished working paper, Stanford University*.

Ettredge, M. L., Huang, Y., & Zhang, W. (2015). Conservative reporting and securities class action lawsuits. *Accounting Horizons, 30*(1), 93-118.

Farshadfar, S., & Monem, R. (2013). The usefulness of operating cash flow and accrual components in improving the predictive ability of earnings: a re-examination and extension. *Accounting & Finance, 53*(4), 1061-1082.

FASB. (1980). Statement of Concepts No. 2. In *Qualitative Characteristics of Accounting Information*. Stamford, CT: FASB.

Fleming, G., Heaney, R., & McCosker, R. (2005). Agency costs and ownership structure in Australia. *Pacific-Basin Finance Journal, 13*(1), 29-52.

Francis, J., Philbrick, D., & Schipper, K. (1994). Shareholder Litigation and Corporate Disclosures. *Journal of Accounting Research, 32*(2), 137-164.

Francis, J. R., & Krishnan, J. (1999). Accounting Accruals and Auditor Reporting Conservatism*. *Contemporary Accounting Research, 16*(1), 135-165.

Francis, J. R., Maydew, E. L., & Sparks, H. C. (1999). The role of Big 6 auditors in the credible reporting of accruals. *Auditing: a Journal of Practice & theory, 18*(2), 17-34.

Gallery, N., Gallery, G., & Nelson, J. (2008). The reliability of mandatory cash expenditure forecasts provided by Australian mining exploration companies in quarterly cash flow reports. *Accounting Research Journal, 21*(3), 263-287.

García Lara, J. M., García Osma, B., & Penalva, F. (2009). The Economic Determinants of Conditional Conservatism. *Journal of Business Finance & Accounting, 36*(3/4), 336-372.

Gibney, B. C. (2001). The end of the unbearable lightness of pleading: Scienter after Silicon Graphics. *UCLA Law Review, 48*(4), 973-973.

Givoly, D., Hayn, C., & Lehavy, R. (2009). The quality of analysts' cash flow forecasts. *The Accounting Review, 84*(6), 1877-1911.

Givoly, D., Hayn, C. K., & Natarajan, A. (2007). Measuring reporting conservatism. *The Accounting Review, 82*(1), 65-106.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate Governance and Equity Prices. *The Quarterly Journal of Economics*, 107-155.

Gong, G., & Luo, S. (2018). Lenders' Experience with Borrowers' Major Customers and the Debt Contracting Demand for Accounting Conservatism. *The Accounting Review*.

Gordon, E. A., Petruska, K. A., & Yu, M. (2014). Do Analysts' Cash Flow Forecasts Mitigate the Accrual Anomaly? International Evidence. *Journal of International Accounting Research, 13*(1), 61-90.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of accounting and economics, 40*(1), 3-73.

Groysberg, B., Healy, P., & Maber, D. (2008). What Drives Financial Analyst Compensation at High-Status Banks? *Working Paper, Harvard Business School, Boston, MA.*

Grundfest, J. A., & Pritchard, A. C. (2002). Statutes with multiple personality disorders: The value of ambiguity in statutory design and interpretation. *Stanford law review*, 627-736.

Guay, W., & Verrecchia, R. (2006). Discussion of an economic framework for conservative accounting and Bushman and Piotroski (2006). *Journal of Accounting and Economics, 42*(1–2), 149-165.

Gul, F. A., Tsui, J., & Dhaliwal, D. S. (2006). Non-audit services, auditor quality and the value relevance of earnings. *Accounting & Finance, 46*(5), 797-817.

Haber, J., & Wallace, K. (2017). Preparing the Statement of Cash Flows Using the Direct Method. *The CPA Journal*.

Hail, L. (2007). Discussion of investor protection and analysts' cash flow forecasts around the world. *Review of Accounting Studies, 12*(2-3), 421-441.

Hayes, R. M. (1998). The Impact of Trading Commission Incentives on Analysts' Stock Coverage Decisions and Earnings Forecasts. *Journal of Accounting Research, 36*(2), 299-320.

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

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the econometric society*, 153-161.

Heninger, W. G. (2001). The association between auditor litigation and abnormal accruals. *The Accounting Review, 76*(1), 111-126.

Hewitt, M. (2009). Improving investors' forecast accuracy when operating cash flows and accruals are differentially persistent. *The Accounting Review, 84*(6), 1913-1931.

Hirshleifer, D., & Teoh, S. H. (2003). Limited attention, information disclosure, and financial reporting. *Journal of accounting and economics, 36*(1), 337-386.

Hodder, L., Hopkins, P. E., & Wood, D. A. (2008). The effects of financial statement and informational complexity on analysts' cash flow forecasts. *The Accounting Review, 83*(4), 915-956.

Holthausen, R. W., & Watts, R. L. (2001). The relevance of the value-relevance literature for financial accounting standard setting. *Journal of accounting and economics, 31*(1), 3-75.

Hopkins, J. (2017). Do Securities Class Actions Deter Misreporting? *Contemporary Accounting Research*.

Horton, J., Serafeim, G., & Serafeim, I. (2013). Does mandatory IFRS adoption improve the information environment? *Contemporary Accounting Research, 30*(1), 388-423.

Houghton, K. A., Kend, M., & Jubb, C. (2013). The CLERP 9 audit reforms: Benefits and costs through the eyes of regulators, standard setters and audit service suppliers. *Abacus, 49*(2), 139-160.

Houston, J. F., Lin, C., Liu, S., & Wei, L. (2015). Shareholder litigation and management earnings forecasts. *Working paper.*

Hribar, P., & Collins, D. W. (2002). Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research, 40*(1), 105-134.

Huang, S., Roychowdhury, S., & Sletten, E. (2018). Does Litigation Encourage or Deter Real Earnings Management? *Working paper.*

Huijgen, C., & Lubberink, M. (2005). Earnings Conservatism, Litigation and Contracting: The Case of Cross-Listed Firms. *Journal of Business Finance & Accounting, 32*(7-8), 1275-1309.

IASB. (2001). Framework for Preparation and Presentation of Financial Statements. In. London: International Accounting Standards Board.

Irvine, P. J. (2003). The incremental impact of analyst initiation of coverage. *Journal of Corporate Finance, 9*(4), 431-451.

Jacob, J., Lys, T. Z., & Neale, M. A. (1999). Expertise in forecasting performance of security analysts. *Journal of accounting and economics, 28*(1), 51-82.

Jayaraman, S. (2012). The effect of enforcement on timely loss recognition: Evidence from insider trading laws. *Journal of accounting and economics, 53*(1-2), 77-97.

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

Johnson, M. F., Kasznik, R., & Nelson, K. K. (2001). The impact of securities litigation reform on the disclosure of forward-looking information by high technology firms. *Journal of Accounting Research, 39*(2), 297-327.

Johnson, M. F., Nelson, K. K., & Pritchard, A. C. (1999). In Re Silicon Graphics Inc.: shareholder wealth effects resulting from the interpretation of the Private Securities Litigation Reform Act's pleading standard. *S. Cal. L. Rev., 73*, 773.

Jones, F. L., & Raghunandan, K. (1998). Client risk and recent changes in the market for audit services. *Journal of Accounting and Public Policy, 17*(2), 169-181.

Jones, S., & Higgins, A. D. (2006). Australia's switch to international financial reporting standards: a perspective from account preparers. *Accounting & Finance, 46*(4), 629-652.

Kellogg, R. L. (1984). Accounting activities, security prices, and class action lawsuits. *Journal of Accounting and Economics, 6*(3), 185-204.

Khan, M., & Watts, R. L. (2009). Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of accounting and economics, 48*(2-3), 132-150.

Khurana, I. K., & Raman, K. K. (2004). Litigation Risk and the Financial Reporting Credibility of Big 4 versus Non-Big 4 Audits: Evidence from Anglo-American Countries. *Accounting Review, 79*(2), 473-495.

Lafond, R., & Roychowdhury, S. (2008). Managerial Ownership and Accounting Conservatism. *Journal of Accounting Research, 46*(1), 101-135.

Lang, M., Raedy, J. S., & Yetman, M. H. (2003). How representative are firms that are cross-listed in the United States? An analysis of accounting quality. *Journal of Accounting Research, 41*(2), 363-386.

Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. *Accounting Review*, 467-492.

Laux, V. (2008). Board independence and CEO turnover. *Journal of Accounting Research, 46*(1), 137-171.

Lawrence, A., Sloan, R., & Sun, Y. (2013). Non-discretionary conservatism: Evidence and implications. *Journal of Accounting and Economics, 56*(2–3, Supplement 1), 112-133.

Lees, F. A. (1981). *Public disclosure of corporate earnings forecasts*.

Levine, D. M., & Pritchard, A. C. (1998). The securities litigation uniform standards act of 1998: The sun sets on California's blue sky laws. *Bus. Law., 54*, 1.

Linnenluecke, M. K., Birt, J., Chen, X., Ling, X., & Smith, T. (2017). Accounting research in Abacus, A&F, AAR, and AJM from 2008–2015: A review and research Agenda. *Abacus, 53*(2), 159-179.

Lobo, G. J., & Zhou, J. (2006). Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence. *Accounting Horizons, 20*(1), 57-73.

Lundholm, R., & Sloan, R. (2012). Equity Valuation and Analysis with eVal: *New York: McGraw-Hill/Irwin.*

Lys, T., & Soo, L. G. (1995). Analysts' forecast precision as a response to competition. *Journal of Accounting, Auditing & Finance, 10*(4), 751-765.

McNichols, M., & O'Brien, P. C. (1997). Self-selection and analyst coverage. *Journal of Accounting Research, 35*, 167-199.

Miao, B., Teoh, S. H., & Zhu, Z. (2016). Limited attention, statement of cash flow disclosure, and the valuation of accruals. *Review of Accounting Studies, 21*(2), 473-515.

Milev, J., Patton, R., & Starykh, S. (2011). Recent trends in securities class action litigation: 2011 midyear review. *Washington DC: Nera Economic Consulting.*

Mohanram, P. S. (2014). Analysts' cash flow forecasts and the decline of the accruals anomaly. *Contemporary Accounting Research, 31*(4), 1143-1170.

Mora, A., & Walker, M. (2015). The implications of research on accounting conservatism for accounting standard setting. *Accounting and Business Research, 45*(5), 620-650.

O'Brien, P. C., & Bhushan, R. (1990). Analyst following and institutional ownership. *Journal of Accounting Research*, 55-76.

Oded, J., & Weiss, D. (2013). Do real economic choices sway asymmetric timeliness of earnings. *Working paper.*

Okun, A. M. (1981). Prices and quantities: A macroeconomic analysis: *Brookings Institution Press.*

Orpurt, S. F., & Zang, Y. (2009). Do Direct Cash Flow Disclosures Help Predict Future Operating Cash Flows and Earnings? *The Accounting Review, 84*(3), 893-935.

Pae, J., & Yoon, S.-S. (2012). Determinants of analysts' cash flow forecast accuracy. *Journal of Accounting, Auditing & Finance, 27*(1), 123-144.

Palmrose, Z.-V. (1988). An Analysis of Auditor Litigation and Audit Service Quality. *Accounting Review, 63*(1), 55.

Pandit, S., Willis, R. H., & Zhou, L. (2012). Security analysts, cash flow forecasts, and turnover. *International Journal of Forecasting, 28*(4), 874-890.

Patatoukas, P. N., & Thomas, J. K. (2011). More evidence of bias in the differential timeliness measure of conditional conservatism. *The Accounting Review, 86*(5), 1765-1793.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies, 22*(1), 435-480.

Pritchard, A. (2009). Testimony before the Committee on the Judiciary, Subcommittee on Crime and Drugs United States Senate. Evaluating S. 1551: The Liability for Aiding and Abetting Securities Violations Act of 2009.

Pritchard, A. C., & Sale, H. A. (2005). What counts as fraud? An empirical study of motions to dismiss under the Private Securities Litigation Reform Act. *Journal of Empirical Legal Studies, 2*(1), 125-149.

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.

Radhakrishnan, S., & Wu, S. L. (2014). Analysts' cash flow forecasts and accrual mispricing. *Contemporary Accounting Research, 31*(4), 1191-1219.

Rogers, J. L., & Van Buskirk, A. (2009). Shareholder litigation and changes in disclosure behavior. Journal of accounting and economics, 47(1), 136-156.

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of accounting and economics, 42*(3), 335-370.

Ruch, G. W., & Taylor, G. (2015). Accounting conservatism: A review of the literature. *Journal of Accounting Literature, 34*, 17-38.

Shon, J., & Young, S. M. (2011). Determinants of analysts' dropped coverage decision: The role of analyst incentives, experience, and accounting fundamentals. *Journal of Business Finance & Accounting, 38*(7-8), 861-886.

Skinner, D. J. (1994). Why Firms Voluntarily Disclose Bad News. Journal of Accounting Research, 32(1), 38-60.

Skinner, D. J. (1997). Earnings disclosures and stockholder lawsuits. Journal of accounting and economics, 23(3), 249-282.

Siconolfi, M. (1992). At Morgan Stanley, analysts were urged to soften harsh views. *The Wall Street Journal, 14*, A1-6.

Steele, L. B. (2011). On the Asymmetric Timeliness of Operating Cash Flows. *Unpublished Working Paper. Eller College of Management, University of Arizona.*

Sterling, R. R. (1970). Theory of the measurement of enterprise income: *University Press of Kansas.*

Stickel, S. E. (1995). The anatomy of the performance of buy and sell recommendations. *Financial Analysts Journal, 51*(5), 25-39.

Stickney, C. P., Brown, P. R., & Wahlen, J. M. (2004). Financial reporting and statement analysis: A strategic perspective: *South-Western Pub.*

Taylor, L. A. (2010). Why are CEOs rarely fired? Evidence from structural estimation. *The Journal of finance, 65*(6), 2051-2087.

Tucker, J. W., & Zarowin, P. A. (2006). Does income smoothing improve earnings informativeness? *The Accounting Review, 81*(1), 251-270.

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), 287-301.

Watts, R. L., & Zimmerman, J. L. (1986). Positive accounting theory.

Weiss, D. (2010). Cost behavior and analysts' earnings forecasts. *The Accounting Review*, *85*(4), 1441-1471.

Yu, F. F. (2008). Analyst coverage and earnings management. *Journal of financial economics*, *88*(2), 245-271.