Three Essays on Conditional Accounting Conservatism

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Abstract

Three Essays on Conditional Accounting Conservatism

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This thesis consists of three essays on issues related to conditional accounting conservatism. In the first essay, we explore how options trading influences the demand for conditional accounting conservatism. Using a large sample of US firms for the period 1997-2019, we provide evidence that options trading is negatively related to the degree of conditional conservatism. Furthermore, a difference in differences analysis provides evidence that firms reduce their level of conditional conservatism after being listed on the options market. Overall, our findings suggest that as options trading enhances information environments and alleviates information asymmetries, it reduces the demand for conditional conservatism from users of financial statements.

The second essay explores how a peer's bankruptcy affects financial reporting by other firms within the industry. A peer firm bankruptcy announcement raises investors' perception of the risk of same industry firms, resulting in higher external financing costs. We argue that following a peer firm bankruptcy filing, a firm in the same industry, may exhibit a higher degree of conditional conservatism to provide more verifiable information and reassure outsiders about its operation. We find that firms use more conditional conservatism following a peer firm bankruptcy filing. Our findings survive a battery of robustness tests. To further explore how bankruptcy spillover effects of peer firms lead to more conservative reporting, we also conduct a series of cross-sectional tests.

The third essay provides a review of research on the economic consequences of conditional accounting conservatism. This survey shows that it is well documented that conditional conservatism contributes to debt contracting efficiency. The preponderance of the evidence suggests that conditional conservatism leads to positive economic consequences. However, I find

some disparities in the findings of prior research. I highlight the potential sources of these disparities. Finally, I present promising future research avenues to address the disparities in the prior studies.

Keywords: Conditional accounting conservatism; Options trading; Information asymmetries; Bankruptcy; Spillover effects; Financial reporting; Cost of equity capital; Debt contracting; Information environments; Earnings management; Investment decisions

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Chapter 1 – Introduction

My motivation to explore accounting conservatism stems from the ongoing debate regarding this fundamental attribute of financial reporting. Accounting conservatism (or prudence) has been pervasively used since medieval times (Basu, 2005). Sterling (1967, p. 110) describes accounting conservatism as "the most ancient and probably the most pervasive principle of accounting". However, this ancient characteristic of accounting has been subject to a controversial debate in recent years. In particular, FASB and IASB posit that conservatism is in conflict with the concept of neutrality and removed conservatism from their conceptual frameworks in 2010. However, the long story of conservatism did not end there. Since then, the standard-setters have been severely criticized by regulators, academic scholars, and practitioners for excluding conservatism from their frameworks. Stakeholders expressed diverse opinions on the introduction of conservatism into IASB's framework (IFRS, 2018). Finally, in March 2018, IASB reincorporated conservatism in its conceptual framework and classified conservatism as an attribute of neutrality (Pelger, 2020).

This ongoing debate indicates a lack of consensus on the desirability of conservatism among various stakeholders. The diverse views on costs and benefits of conservatism suggest that, despite decades of research, we still do not fully understand the determinants and consequences of accounting conservatism. Moreover, the recent advances in financial markets, such as the development in options markets, and the rise of new trading methods profoundly influence the information environments. Changes in information environments may also impact the demand for conservatism as well as the consequences of conservatism (e.g., information asymmetries). Therefore, there is a need for further research to fully understand what are the determinants of

conservatism, what are the consequences of using accounting conservatism, and what mechanisms reduce the need for accounting conservatism.

In this study, I focus on conditional conservatism, as there is more debate about conditional conservatism in the literature. Moreover, conditional conservatism is more controversial as managers have discretion over employing it and it is desirable to some users of financial statements. This thesis adds to our understating of conditional accounting conservatism by providing insights into the following main questions:

1- What mechanisms reduce the need for conditional conservatism?
2- What are the determinants of using conditional conservatism?
3- What are the economic consequences of using conditional conservatism?

In the first essay (co-authored with Michel Magnan and Ahmad Hammami), we attempt to address the first question by exploring how options trading influences the demand for conditional accounting conservatism. Since the options market is one of the fastest-growing sections of the US capital market, it is important to understand how it shapes the financial reporting policy of firms. Informed options traders actively search for private information and effectively process public information. It is unclear a priori whether and how options trading relates to conditional conservatism. On the one hand, the trading activity of these traders informs the capital market participants and thus options trading leads to a lower level of information asymmetries in the capital market. The majority of the evidence suggests that an active options market reduces information asymmetries and enhances information environments. One of the main reasons that financial statement users demand conditional accounting conservatism is to alleviate information asymmetries. Therefore, it is reasonable to argue that options trading may reduce the demand for conditional accounting conservatism by alleviating information asymmetries.

On the other hand, options trading may promote more conditional conservatism. The intuition is as follows. Options traders may reveal bad news quickly to the capital market and thus may trigger stock price crashes, which are often followed by shareholders' lawsuits. Hence, managers may report bad news more quickly to reduce the likelihood of lawsuits. Moreover, options trading may have no impact on conditional conservatism as noise trading by uninformed traders may weaken the informational effects of informed options traders. Therefore, the impact of options trading on conditional conservatism is an empirical question which warrants further investigations. Using a large sample of US firms that are listed on the options exchanges, we find that options trading is negatively related to the degree of conditional conservatism. Further investigations reveal that the negative impact of options trading on conditional conservatism is more pronounced where the expected information asymmetry is high. However, we observe that options trading has little or no effect on conditional conservatism when the economic policy uncertainty is high. We also document that the negative impact of options trading on conditional conservatism is accentuated when the investment sentiment is high. This study adds to the literature on determinants of conditional conservatism. In particular, this study is one of few studies that identify a mechanism that alleviates the demand for conditional conservatism. Since this study shows that options trading influences firms' financial reporting policies, it also contributes to the emerging literature on the effects of options trading on firms' outcomes.

In the second essay (co-authored with Michel Magnan), we address the second question on the determinants of conditional conservatism by examining how peer firms' bankruptcy announcements may influence the degree of conditional conservatism in other firms in the same industry. The bankruptcy filing of a peer firm has a negative effect on market value and leads to a higher cost of debt. We argue that following a bankruptcy filing in a sector, firms become more

conservative in their accounting to mitigate the potential negative impact of the news on their relation with capital providers. Using a large sample of US firms from 1980 to 2018, we find that firms exhibit more conservatism in financial reporting following a peer firm bankruptcy filing. The result is robust to the exclusion of distressed industries, the 2000 dot-com crash period, and the 2008 financial crisis period. The results are insignificant for placebo bankruptcies one and two years before the actual bankruptcies. Further analysis shows that only firms in low concentration industries employ more reporting conservatism. This study provides evidence that news from peer firms affects the degree of firms' conditional conservatism. Moreover, it shows that the degree of conditional conservatism fluctuates over time as firms use conservatism to reassure the capital providers in times of uncertainty.

In the third essay, I strive to address the final key question, which is on the economic consequences of conditional conservatism. I organize the review around four main economic consequences of employing conditional conservatism. First, I focus on debt-contracting implications of conditional conservatism. The literature on the association of conditional conservatism and debt-contracting is relatively mature in the sense that the preponderance of the evidence suggests that conditional conservatism contributes to debt-contracting efficiency. Moreover, the recent work by Penalva and Wagenhofer (2019) provides a comprehensive review of this strand of the literature. Hence, I briefly review this line of research. Second, I focus on the impact of conditional conservatism on information environments. This line of the literature is relevant to this study as it is closely connected to the literature on the association between conditional conservatism and the cost of equity capital. While empirical studies, in this area, mainly shows that conditional conservatism alleviates information asymmetries, the findings on the effects of conservatism on financial analysts' forecasts are mixed. The third consequence of

conditional conservatism discusses the cost of equity capital. The empirical findings in this body of research are also mixed. Finally, I review studies on how conditional conservatism shapes investment decisions. A group of studies in this line of research shows that conditional conservatism improves investment efficiency. Another group of studies report that conditional conservatism curbs risk-taking and leads to more conservative investment choices. For each consequence of conditional conservatism, I summarize and analyze findings of theoretical as well as empirical studies, and then I attempt to discover potential sources of mixed findings in the literature. Next, I present directions for promising future research.

The remainder of this thesis is organized as follows. Each of the following three chapters is assigned to each of the three essays. The fifth chapter presents the conclusion and directions for future research.

Chapter 2 – Does Options Trading Reduce the Demand for Conditional Accounting Conservatism?

Abstract

We examine if options trading via organized markets reduces the demand for conditional conservatism by alleviating information asymmetry and by mitigating the shareholders-manager conflict. We build upon and extend prior evidence that options trading enhances stock market informational efficiency. Focusing on a large sample of firms from 1997 to 2019, we show that options trading is associated with less conditional conservatism in financial reporting. Moreover, firms reduce their level of conditional conservatism after being listed on the options market. Options trading's impact on conditional conservatism is greater among small firms, firms with low asset tangibility, and firms with long investment cycles. We find that options trading has little or no effect when economic policy uncertainty is high. We observe that the presence of financial analysts strengthens the negative association between options trading and conditional conservatism. We also document that options trading prominently influences conditional conservatism when investor sentiment is high.

Key words: conditional conservatism, options trading, information asymmetry

2.1 Introduction

Accounting conservatism is the source of a long and vigorous debate among standard setters, policy makers, practitioners, and academics. For instance, in 2010, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) considered that prudence (conservatism) conflicted with neutrality and therefore excluded it from their Conceptual Framework draft proposal. The decision to abandon conservatism drew widespread criticism from practitioners, politicians, and academics. The European Parliament actually threatened to cut its funding if the IASB did not reincorporate conservatism into its Conceptual Framework (Jones, 2013). Under pressure, in March 2018 the IASB reintroduced prudence in its framework as an attribute of neutrality (Pelger, 2020). Academic research provides ample evidence that financial statement users demand conservatism to attenuate information asymmetry problems (e.g., Ahmed, Billings, Morton, & Stanford-Harris 2002; Kim, & Zhang. 2016; LaFond, & Watts 2008; Ramalingegowda, & Yu 2012). However, we know little about what can substitute for conservatism. We address this void by exploring if and how options trading reduces the need for conditional conservatism, a key feature of financial statements.

The options market is one of the critical components of financial markets, playing an important role in complementing the stock market (Ross, 1976) as well as enhancing transactional and information efficiency (Figlewski, & Webb, 1993). In the last two decades, the total number of traded equity options contracts in the United States grew from 676 million in 2000 to 4,572 million in 2020 (Blanco, & Garcia, 2021)[1]. Academic research on options trading also grew accordingly and points toward options trading enhancing the quality of firms' information

[1] Retrieved on April 14, 2021, from The Options Clearing Corporation web site: https://www.theocc.com/Market-Data/Market-Data-Reports/Volume-and-Open-Interest/Historical-Volume-Statistics

environments (e.g., Cao, Goyal, Ke, & Zhan, 2020a; Ho, Hassell, & Swidler, 1995; Hu, 2018). Recent developments in the options market and their documented impact on the information environment motivate us to explore the potential impact of options trading on firms' financial reporting attributes.

It is not obvious ex-ante whether and how options trading influences conditional accounting conservatism. On the one hand, there are at least two reasons that options trading may reduce the demand for conditional conservatism. First, shareholders and lenders demand conservatism, as it alleviates information asymmetry (e.g., LaFond, & Watts 2008; Watts, 2003a, 2003b; Garcia Lara, Garcia Osma, & Penalva, 2014). Options trading helps in this regard by improving firms' information environments and reducing information asymmetry (e.g., Cao et al., 2020a; Hu, 2018). Thus, options trading may reduce the demand for conditional conservatism by alleviating information asymmetry. Second, shareholders demand conditional conservatism because asymmetric loss recognition reduces agency problems and encourages managers to invest in positive net present value (NPV) projects and quickly abandon negative NPV projects (Ball, 2001; Lafond, & Roychowdhury 2008). Options trading improves price efficiency, and thus stock prices better reflect the fundamental value of managers' investment decisions (Blanco, & Wehrheim 2017; Roll, Schwartz, & Subrahmanyam, 2009). Accordingly, options trading may motivate managers to invest in value-enhancing projects. As such, options trading may decrease demand for conditional conservatism by aligning the interests of shareholders and managers.

On the other hand, there are at least two arguments consistent with options trading leading to a higher degree of conditional conservatism. First, discovering and conveying bad news to capital markets by options traders may lead to a sudden stock price plunge (Bhatia, Cao, Chen, & Truong, 2014), which triggers litigation. Therefore, managers may report bad news quickly, before

options traders reveal it to the capital market. Second, options trading enhances stock price efficiency, which, in turn, may encourage managers to act in the interest of shareholders by investing in value-enhancing activities such as research and development (R&D) projects (Blanco, & Wehrheim 2017). However, it also intensifies debtholder-shareholder conflicts due to debtholders' asymmetric pay-off structure with regard to risky projects (Watts, 2003a, & 2003b). Kravet (2014) documents that lenders demand conditional conservatism to curb risk-taking by managers, and this could be one reason debtholders demand conservatism. Consequently, if price efficiency enhancement motivates managers to pursue risky projects, then we can expect debtholders, who do not benefit from risk-taking, to demand more conservatism to prevent managers from investing in risky projects. There are also reasons to expect that options trading may have no effect on conditional conservatism, as there are some studies that fail to find evidence of information production by options traders (e.g., Manaster, & Rendleman 1982; Hu, 2014; Xing, Zhang, & Zhao, 2010). Given these different theoretical views and research findings, the impact of options trading on conditional accounting conservatism is an open empirical question.

To examine how options trading impacts conditional accounting conservatism, we employ Ball and Shivakumar's (2005) model of conditional conservatism, which has been widely used in prior studies (e.g., Ge, Seybert, & Zhang 2019; Khan, & Lo 2019). Following prior research, we use options trading volume to capture the level of options trading activity. We control for size, leverage, and market to book value, the standard controls from the conservatism literature (e.g., Khan, & Watts 2009). As there are many unobserved factors that may determine both options trading volume and the degree of conditional conservatism, the estimation of the association between options trading volume and the degree of conditional conservatism may suffer from estimation errors arising from an endogeneity bias. Hence, we adopt a two-stage least square

(2SLS) approach. Following prior studies on the impact of options trading on firms' outcomes (e.g., Blanco, & Wehrheim 2017; Roll et al., 2009), we use moneyness and open interest as instrumental variables of options trading volume to conduct 2SLS regressions.

Relying on a US sample of 37,887 non-financial firm-year observations from 1997 to 2019, we find that options trading attenuates the level of conditional conservatism in financial reporting. Results are robust to the inclusion of additional control variables, the use of an alternative definition of moneyness as the instrument variable, as well as the use of Basu's (1997) persistence of earnings changes model as an alternative proxy for conditional conservatism. A difference-in-difference analysis provides evidence that firms exhibit less conditional conservatism following options listing.

We perform further analyses to highlight specific scenarios where an active options market leads to a lower level of conditional accounting conservatism. We find that options trading has an effective impact on conditional conservatism among small firms, firms with long investment cycles, and firms with low tangibility, i.e., firms in which there is likely more information asymmetry. These findings are consistent with our argument that by reducing information asymmetry, an active options market leads to lower conditional conservatism. By contrast, we observe that options trading has little or no effect on conditional conservatism when the uncertainty (as proxied by economic policy uncertainty [EPU]) is largely exogenous to the firms. We document that the impact of options trading is more pronounced when financial analyst coverage is high, implying that analysts complement options trading as a means to reduce information asymmetry and, ultimately, the demand for conditional conservatism. Finally, Ge, Seybert, and Zhang (2019) argue that stocks tend to be overpriced during high sentiment periods, leading firms to exhibit more conservatism to reduce litigation risk that may result from future stock price

declines. Hence, we expect the impact of options trading on conservatism to be more pronounced when investor sentiment is high, because options trading contributes to market efficiency and reduces the likelihood of stock overpricing. Our results are consistent with our expectations.

This study is at the intersection of the literature on accounting conservatism and options trading and it contributes to both streams of literature. First, while there is a wealth of evidence that financial statement users demand conditional accounting conservatism, little is known about mechanisms that can act as a substitute for it. Two notable studies attempt to find mechanisms that lower the demand for conditional conservatism. Gong and Luo (2018) find that lenders' dealings with their borrowers' major customers substitute for the use of conditional conservatism by borrowers. Burke, Chen, and Lobo (2020) show that corporate social responsibility (CSR) reduces the demand for conditional conservatism. Our study extends this line of research by showing that options trading reduces the demand for conditional conservatism. This article is also related to prior work on how different aspects of capital markets affect conditional conservatism. For instance, previous studies find that conditional conservatism increases with institutional ownership (Ramalingegowda, & Yu 2012), financial analyst following (Sun and Liu 2011), the presence of hedge funds (Cheng, Ng, and Yang 2015), and an active short selling market (Jin, Lin, Yang, & Zhang, 2018). By contrast, we find that options trading is associated with a lower level of conditional conservatism.

Second, this study contributes to an emerging but limited body of research on how options trading influences corporate policies. Previous studies find that options trading improves corporate resource allocation (Roll et al., 2009), promotes innovation (Blanco, & Wehrheim, 2017), reduces voluntary disclosure (Chen et al. 2021), and shapes debt structure (Cao, Hertzel, Xu, & Zhan,

2020b). However, there is scant research as to how options trading influences financial reporting choices, an important corporate policy.

The remainder of the paper is organized as follows: Section 2 discusses prior literature and research question development. Section 3 details the research design. Section 4 describes the sample and presents descriptive statistics. Section 5 reports empirical results, including additional analyses and robustness tests. The conclusion follows in Section 6.

2.2 Literature review and research question

2.2.1 Conditional conservatism

Accounting conservatism is one of the most important financial reporting features that results in exercising caution and high degrees of verification in reporting accounting numbers. The literature classifies accounting conservatism into two broad categories: conditional conservatism and unconditional conservatism (Beaver, & Ryan, 2005). The difference between these two categories is that conditional conservatism depends on economic news, while accountants apply unconditional conservatism irrespective of economic news (Ruch, & Taylor, 2015). We focus on conditional conservatism, as we have reasons to believe that options trading influences the demand for conditional conservatism.[2]

The literature on the determinants of conditional conservatism is vast and has grown substantially over the last twenty years. As pointed out by Ruch and Taylor (2015), the literature mainly focuses on conservatism, and three main users of accounting information including

[2] In their review of the literature, Ruch and Taylor (2015) point out that most studies in this field focus on conditional accounting conservatism because it provides information about "uncertain events" and reduces information asymmetry. Our main rationale for the potential impact of an active options market on conditional conservatism lies in the argument that options trading decreases information asymmetry. As such, we examine the association between options trading and conditional accounting conservatism.

debtholders, shareholders, and governance users. Numerous empirical studies show that lenders demand conditional conservatism, as it provides more relevant information to them and reduces information asymmetry (e.g., Ahmed et al., 2002; Beatty, Weber, & Yu, 2008). Prior studies document that managers strategically use conditional conservatism to alleviate information asymmetries between them and shareholders (Kim, Li, Pan, & Zuo, 2013). Shareholders also demand conditional conservatism to mitigate agency problems (LaFond, & Watts, 2008). A group of studies finds that governance mechanisms rely on conditional conservatism to facilitate the monitoring of managers and restrict their abilities to manipulate earnings upward (e.g., Ahmed, & Duellman, 2007; García Lara, García Osma, & Penalva, 2009).

However, little is known about mechanisms that may reduce the demand for conditional conservatism or act as a substitute for it.[3] In this article, we seek to fill this gap in the literature by examining the impact of an active options trading market on the degree of conditional conservatism.

2.2.2 Literature review on equity options trading

Equity options trading has been of interest to many researchers since April 26, 1973, the day it was initiated on the Chicago Board Options Exchange (CBOE). A large body of work provides evidence that options trading improves the quality of firms' information environments. For instance, a group of studies documents that the options market leads the stock market and contributes to the price discovery process around corporate news events such as earnings

[3] There are two notable exceptions. First, Burke et al. (2020) argue that CSR alleviates information asymmetry and thus it reduces the demand for conditional conservatism. Consistent with this view, Burke et al. (2020) find a negative association between conditional conservatism and CSR. Second, Gong and Luo (2018) find that lenders have a lower demand for conditional conservatism when they have lending relationships with the borrower's major customers.

announcements by uncovering and delivering private information to the stock market (e.g., Jennings, & Starks 1986; Jin, Livnat, & Zhang, 2012; Truong, & Corrado 2014). Ho et al. (1995) and Yu, Tandon, and Webb (2010) show that analyst forecasts become more accurate following options listings and attribute their findings to the richer information sets associated with options trading. Hu (2018) documents that option listing reduces information risk and information asymmetry, with such effects being more significant when there is an active options market. Cao et al. (2020a) provide evidence that options trading improves stock price informativeness.

While most prior research focuses on how options trading influences the underlying stock market, our study belongs to an emerging line of research focusing on how the options market influences underlying firms. Roll et al. (2009) initiate this line of research by showing that an active options market enhances firms' values. Roll et al. (2009) attribute their findings to (1) agents covering more contingencies, (2) improving resource allocation, which is the result of information production associated with options trading; and (3) higher price efficiency, which improves corporate resource allocation. Naiker, Navissi, and Truong (2013) argue and find that option listings and options trading reduce information asymmetry and improve the precision of the information, and thus result in a lower cost of equity capital. Blanco and Wehrheim (2017) find that options trading promotes innovation by alleviating information asymmetries associated with innovation activities, which motivate managers to invest in R&D projects. Cao et al. (2020b) document that the improved information environment associated with options trading allows firms to shift from bank loans to public bonds. Do, Truong, and Vu (2019) note that option listings are associated with smaller loan spreads and relaxed covenant restrictions, suggesting that the options market reduces information asymmetry between firms and banks. Blanco and Garcia (2021) report that options trading is associated with higher bond yields. They suggest that although options

trading reduces information asymmetry between borrowers and lenders, it motivates risk-taking by managers, which results in higher bond yield. Chen, Ng, and Yang (2021) observe that options trading is negatively associated with voluntary disclosure. They conclude that as options trading reduces information asymmetry, it discourages managers from voluntarily disclosing information. Ali, Balachandran, Duong, Puwanenthiren, and Theobald (2020) argue that constant information production by options traders restricts managers from manipulating financial information, which reduces the litigation risk for auditors. Consistent with their argument, they find a negative association between options trading and audit fees. We extend this line of research relating to options trading and corporate policies by exploring how options trading affects conditional accounting conservatism.

2.2.3 Research question development

It is not clear a priori how options trading relates to conditional conservatism. Options trading can reduce the demand for conditional conservatism for two reasons. First, lenders and shareholders demand conservatism to alleviate information asymmetry (e.g.,LaFond, & Watts, 2008) and limit managers' ability to opportunistically manipulate accounting numbers (Ball, 2001; García Lara, García Osma, & Penalva, 2020). However, it is well documented in the literature that options trading improves the firm's information environment and reduces information asymmetry (e.g., Cao et al., 2020a; Hu, 2018). There is also evidence that options trading alleviates information asymmetry between firms and lenders, as it improves the firm's information environment (Cao et al., 2020b; Do et al., 2019). Options traders who actively search for private information may also curb managers' ability to engage in earnings manipulation (Ali et al., 2020).

As such, options trading may reduce the need for conditional conservatism by alleviating information asymmetry.

Second, Lafond and Roychowdhury (2008) provide evidence that shareholders demand conditional conservatism to mitigate agency problems. The rationale is that timely loss recognition discourages managers from investing in negative NPV projects for personal benefits and motivates them to abandon negative NPV projects more quickly (Ball, 2001). Options trading also improves investment efficiency, as it increases the sensitivity of a company's stock price to its investment decisions (Roll et al., 2009). In other words, informed options traders' activities help stock prices move towards their fundamental value and, as a result, better reflect the value of the firms' investments in different projects (Blanco, & Wehrheim, 2017). Consequently, options trading motivates managers to follow the interests of shareholders, as the value of their investment decisions will be reflected in stock prices. Therefore, an active options trading market can act as a corporate governance mechanism that mitigates agency problems and thereby reduces demand for conditional conservatism.

Nevertheless, there are at least two reasons to expect options trading could induce firms to engage in conditional conservatism. First, options traders constantly search for hidden information, and their trading transmits private information to capital markets. If managers withhold bad news, then options traders may discover the bad news and convey it to capital markets, which may result in stock price declines (or crashes), which are associated with litigation (Johnson, Kasznik, & Nelson, 2001).[4] As such, we can expect that, in the presence of an active options market, managers report bad news in a timely manner to reduce the risk of litigation.[5]

[4] Bhatia et al. (2014) find a positive association between options trading and stock price crash risk.
[5] Financial analysts and short sellers also improve firms' information environments. However, Jin et al. (2018) and Sun and Liu (2011) find that short selling and analyst coverage, respectively, are associated with a higher degree of conditional conservatism.

Second, as previously mentioned, options trading aligns the interests of managers with those of the shareholders by improving price efficiency, as more efficient prices better reflect the fundamental value of investment decisions. Thus, options trading motivates managers to invest in risky projects such as R&D projects (Blanco, & Wehrheim 2017). Due to debtholders' asymmetric payoff structure, investment in risky projects may result in the transfer of wealth from debtholders to shareholders (Jensen, & Meckling, 1976). However, Kravet (2014) finds evidence that conditional conservatism decreases management's incentives to engage in risky activity and, consequently, debtholders demand conditional conservatism to curb risk-taking. Therefore, it is reasonable to argue that debtholders demand conditional accounting conservatism in the presence of an active options trading market.

Notwithstanding the above arguments, we may not find any relation between options trading and conditional accounting conservatism. Overall, the literature suggests that options trading improves the quality of firms' information environments (e.g., Cao et al., 2020a; Hu, 2018). However, some studies fail to support such an improvement. For instance, a number of studies that examine the lead-lag relation between the stock market and the options market find that the stock market leads the options market, suggesting that the options market has no information advantage (e.g., Hu, 2014; Manaster, & Rendleman, 1982; Xing et al., 2010).[6] Although the trading activity of informed options traders conveys private information to the other capital market participants, noise trading by uninformed traders may impede private information learning, which may weaken the impact of options trading on firms' information environments (Roll, Schwartz, & Subrahmanyam, 2010). Given these competing theoretical perspectives, the impact of options trading on conditional accounting conservatism is an open empirical question.

[6] Black and Scholes (1973) theorize that, in a perfect market, options are redundant, as any option can be identically replicated by investing in a portfolio composed of the underlying stock and bond assets.

2.3 Research design

In this study, we employ the accrual-operating cash flow model developed by Ball and Shivakumar (2005), which has been widely used in the literature (e.g., Ge et al., 2019; Khan, & Lo, 2019). This model suits a context in which there is options trading, since it relies solely on reported accounting numbers.[7] The intuition behind this model is that operating cash flow generated from durable assets tends to be persistent over time. Hence, current operating cash flow is positively associated with future cash flow. Therefore, current operating cash flow can be used as a proxy for unrealized economic losses or gains. In the presence of conditional accounting conservatism, accruals capture economic losses (bad news) more quickly than economic gains (good news). Thus, when operating cash flow is negative (i.e., bad news), the association between accruals and operating cash flow should be positive. Ball and Shivakumar's (2005) model is as follows:

$$ACC_{i,t} = \beta_0 + \beta_1 DCFO_{i,t} + \beta_2 CFO_{i,t} + \beta_3 DCFO_{i,t} \times CFO_{i,t} + \varepsilon \quad (1)$$

[7] While the measurement of conditional accounting conservatism often relies on Basu's (1997) earning-return asymmetric timeliness, its application in our context presents a challenge. A key underlying assumption behind the earning-return asymmetric timeliness model is that stock returns capture economic news equally across various types of firms (Holthausen, 2003). However, the options trading literature suggests that an active options trading market measured by options trading volume improves price efficiency (Cao et al., 2020a). As such, it is expected that the degree of capturing economic news by stock returns varies in association with options trading volume across firms. Accordingly, it can be inferred that in Basu's (1997) model, the association between earnings and bad economic news (measured by negative stock returns) is influenced by options trading volume. An implication is that the earning-return asymmetric timeliness is likely a biased model for capturing conditional conservatism in a context in which there is options trading. We also do not know whether options trading leads stock prices to capture good and bad economic news equally. Therefore, the Khan and Watts' (2009) model of conditional conservatism is not a reliable proxy for this study as it is based on the Basu's (1997) model of conservatism. Future research could explore how options trading influences the earning-return asymmetric timeliness model. Similarly, options trading volume may induce bias in the Callen, Segal, and Hope (2010) model of conservatism as this model relies on market data. Proxies that has been designed to capture conditional conservatism over multiple years (e.g., Givoly, & Hayn, 2000) are also not appropriate for our study as we are interested in the dynamic activity in the options market.

Where $ACC_{i,t}$ represent total accruals for firm i in year t, defined as the difference between net income before extraordinary items and cash flow from operations, deflated by the beginning total assets. $CFO_{i,t}$ is cash flow from operations for firm i in year t, deflated by total assets at the beginning of the year. $DCFO_{i,t}$ is a dummy variable that equals to 1 if $CFO_{i,t}$is negative and 0 otherwise. The coefficient of interaction between $CFO_{i,t}$ and $DCFO_{i,t}$ captures the level of conditional conservatism.

To examine the impact of options trading on conditional accounting conservatism, Ball and Shivakumar's (2005) model is augmented by introducing control variables and options trading volume, which is our proxy for options trading activity,[8] as follows:

$$\begin{aligned} ACC_{i,t} = {} & \beta_0 + \beta_1 DCFO_{i,t} + \beta_2 CFO_{i,t} + \beta_3 DCFO_{i,t} \times CFO_{i,t} + \beta_4 DCFO_{i,t} \times Volume_{i,t} + \\ & \beta_5 CFO_{i,t} \times Volume_{i,t} + \beta_6 DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t} + \beta_7 Volume_{i,t} + \\ & \beta_8 DCFO_{i,t} \times Size_{i,t} + \beta_9 CFO_{i,t} \times Size_{i,t} + \beta_{10} DCFO_{i,t} \times CFO_{i,t} \times Size_{i,t} + \\ & \beta_{11} Size_{i,t} + \beta_{12} DCFO_{i,t} \times LEV_{i,t} + \beta_{13} CFO_{i,t} \times LEV_{i,t} + \beta_{14} DCFO_{i,t} \times CFO_{i,t} \times \\ & LEV_{i,t} + \beta_{15} LEV_{i,t} + \beta_{16} DCFO_{i,t} \times MB_{i,t} + \beta_{17} CFO_{i,t} \times MB_{i,t} + \beta_{18} DCFO_{i,t} \times \\ & CFO_{i,t} \times MB_{i,t} + \beta_{19} MB_{i,t} + \varepsilon \end{aligned} \quad (2)$$

Where $Volume_{i,t}$ is the natural logarithm of 1 plus the aggregated annual options trading volume (in \$10,000) for firm i and the fiscal year t. Consistent with prior work (e.g., Khan and Watts 2009), we control for size ($Size_{i,t}$), leverage ($LEV_{i,t}$), and market to book ratio ($MB_{i,t}$). We control for industry and year fixed effects and cluster standard errors at the firm level.

[8] Our arguments rely on the informational role of informed traders who actively search for hidden information and finally bring hidden information to the capital market. As pointed out by Truong and Corrado (2014), an active options market provides opportunities for informed options traders to trade based on their information. As such, the information role of informed options traders varies with options trading volume (options trading opportunities). In other words, when options trading is low and speculative traders are not active, there are few opportunities for informed traders to trade based on their hidden information.

Endogeneity is a main concern in this study, as it may lead to seriously biased and inconsistent estimates. It is highly likely that options trading volume is determined by the firm's financial reporting attributes. For instance, options traders may avoid firms that exhibit a high degree of conditional accounting conservatism. It is also possible that both options trading volume and the decision to use conditional conservatism are correlated with omitted variables. For example, firm-specific variables, such as firm-level uncertainty, capital structure, or CEO characteristics, may determine both options trading volume and the degree of conservatism.

To mitigate endogeneity bias in our estimates, we employ two instrumental variables of options trading volume to conduct 2SLS regressions. The first instrumental variable is moneyness, which equals the annual average of the absolute difference between the option's strike price and the stock's market price at the end of the day. The second instrumental variable is open interest, which equals the natural logarithm of one plus the annual average of open option contracts. Both moneyness and open interest have been used by researchers to study the impact of options trading on firm values (Roll et al., 2009), cost of debt (Blanco, & Garcia, 2021), stock price informativeness (Cao et al., 2020a), audit fees (Ali et al., 2020), and corporate policies such as innovation (Blanco, & Wehrheim, 2017), voluntary disclosure (Chen et al., 2019), and debt structure (Cao et al., 2020b). Previous studies and our analyses show that both moneyness and open interest are positively and significantly related to options trading volume.[9] There is no reason to expect that moneyness or open interest will be inherently related to the degree of conditional conservatism through a pathway other than options trading volume. Moreover, moneyness should be exogenous to financial reporting attributes, as exchanges regularly list new options with strike

[9] Roll et al. (2009) provide an excellent discussion on the relevance of moneyness and open interest to options trading volume.

prices close to the current market price of the underlying stock (Roll et al., 2009). As such, we deem both moneyness and open interest to be suitable instrumental variables.

2.4 Sample and descriptive statistics

2.4.1 Sample

The sample includes only US firms for which there are listed option contracts. We construct our sample by combining firm-year observations from Compustat and OptionMetrics. Our sample begins in 1997 and ends in 2019. Financial industry firms are removed from the sample (SIC code 6000-6799). We drop observations with missing data to calculate the variables used in Ball and Shivakumar's extended model (2005, 2006). After truncating all continuous variables at the 1st and 99th percentiles, the main sample used in our study has 37,887 firm-year observations. The investor sentiment data are obtained from Professor Jeffrey Wurgler's personal website (http://people.stern.nyu.edu/jwurgler). The EPU data are collected from http://www.policyuncertainty.com. The analyst coverage data are extracted from the Institutional Brokers Estimate System (IBES) database.

2.4.2 Descriptive statistics

Table 1 Panel A provides descriptive statistics for variables employed in equation (2). The mean (median) of (options trading volume) $Volume$ is 2.229 (1.813), which is comparable to the distribution 2.340 (1.862) in Chen et al. (2019). The mean and median of (cash flow) CFO is 0.076 (0.093). The mean (median) of (negative cash flow) $DCFO$ is 0.16 (0.000), suggesting that 16 percent of firm years in the sample experience negative cash flow. Table 1 Panel B reports the Pearson correlation among variables. Almost all variables are significantly ($p < 0.01$) correlated

with each other, but not at levels that suggest multicollinearity: the highest correlation (0.733) is between *CFO* and *DCFO*, two variables that we expect to be correlated.

[Insert Table 1 about here]

2.5 Results

2.5.1 Main results

The main model of this study includes interactions between $Volume_{i,t}$ (options trading $Volume_{i,t}$) and Ball and Shivakumar's (2005) model's variables. Hence, following Wooldridge (2000), we construct additional instrument variables by interacting moneyness and open interest with $CFO_{i,t}$, $DCFO_{i,t}$, and $DCFO_{i,t} \times CFO_{i,t}$.[10] First-stage regression estimates are reported in Panels A (using moneyness as instrument) and B (using open interest as instrument) of Table 2. Consistent with prior studies, we find an economically and statistically significant positive relationship between both instrument variables and options trading volume.

Table 2 Panel C presents results from second-stage 2SLS regressions, with and without control variables included. The dependent variable is *ACC* (i.e., total accruals). For all different model specifications, the under-identification test of Kleibergen-Paap rk LM statistic is significant, indicating that instrument variables are not under-identified. The weak identification test of the Kleibergen-Paap F test statistic is significant. Consistent with the rule of thumb critical value

[10] More specifically, following Wooldridge (2000) each interaction term between the endogenous variable (i.e., $Volume_{i,t}$) and exogenous variables (i.e., $CFO_{i,t}$, $DCFO_{i,t}$) is considered as an endogenous variable and their corresponding instrument variables are created by multiplying each instrument variable (i.e., moneyness and open interest) by exogenous variables. In other words, there are four endogenous variables ($Volume_{i,t}$, $DCFO_{i,t} \times Volume_{i,t}$, $CFO_{i,t} \times Volume_{i,t}, DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$) and if we use moneyness ($Money_{i,t}$) as the main instrument variable, then we have four instrument variables ($Money_{i,t}$, $DCFO_{i,t} \times Money_{i,t}$, $CFO_{i,t} \times Money_{i,t}, DCFO_{i,t} \times CFO_{i,t} \times Money_{i,t}$). In the first-stage regression, we estimate each endogenous variable by using all exogenous variables, including each instrument variables (Baltagi, 2011).

proposed by Staiger and Stock (1997), the Cragg-Donald Wald F statistic is far greater than 10 across all specifications, indicating that the instruments are not weakly identified. The Cragg-Donald Wald F statistic also far exceeds all critical values put forward by Stock and Yogo (2005), suggesting that the group of instruments is sufficiently strong. The Anderson-Rubin F test and the level of Stock-Wright LM S statistic confirm that instrument variables are not weak. The Hansen J statistic (0.000), a test of the over-identifying restrictions, indicates that all equations are exactly identified. Collectively, the statistical tests suggest that our 2SLS methodology is appropriate, and estimations are unlikely to suffer from weak-instruments bias.

[Insert Table 2 about here]

The coefficient on the variable of interest, $DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$, is negative and significant across all specifications in Panel C, indicating that an active options trading market is associated with a lower degree of conditional conservatism. Using moneyness as the instrument for *Volume*, the coefficient is -0.013 ($p < 0.01$) for the estimation without control variables and -0.098 ($p < 0.01$) for the estimation with control variables. Using open interest as the instrument for *Volume*, the coefficient is -0.044 ($p < 0.01$) for the estimation without control variables and -0.122 ($p < 0.01$) for the estimation with control variables.

LaFond and Watts (2008) hypothesize that "political costs" may lead big firms to be more conservative. Khan and Watts (2009) argue that big firms are subject to higher litigation risk and bear fixed costs of litigation. Hence, big firms may use more conditional conservatism to reduce their litigation risk. Consistent with this view, the coefficient on $DCFO_{i,t} \times CFO_{i,t} \times Size_{i,t}$ is positive and significant (0.162, $p < 0.01$ and 0.18, $p < 0.01$) in both 2SLS regressions with control

variables, indicating that conditional conservatism increases with firm size.[11] The coefficient on the interaction term $DCFO_{i,t} \times CFO_{i,t} \times LEV_{i,t}$ is not statistically significant (0.017, p < 0.591; 0.027, p < 0.373) in either estimation, indicating that leverage has no impact on conditional conservatism in our sample. Prior research indicates that options-listed firms typically exhibit an easier access to debt and a lower level of information asymmetries (Cao et al., 2020b; Do et al., 2019). Therefore, a likely outcome is less demand from lenders for conditional conservatism. The coefficient on $DCFO_{i,t} \times CFO_{i,t} \times MB_{i,t}$ is positive and significant (0.007, p < 0.05; 0.007, p < 0.05) for both estimations, indicating that firms with high growth options (as proxied by $MB_{i,t}$) use more conditional conservatism to reduce agency problems and information asymmetries associated with growth options (Khan and Watts 2009).

2.5.2 Difference-in-difference regression analysis

To further investigate the impact of options trading on conditional conservatism, we perform a difference-in-difference analysis to study the effect of options listing on conditional conservatism. The listing of options contracts is a decision that is made by exchanges and is out of managers' and shareholders' control. The criteria used by exchanges for options listing are mostly related to a firm's stock price, its number of shareholders, and its number of publicly held

[11] LaFond and Watts (2008) and Khan and Watts (2009) also contend that "income aggregation" across multiple segments or projects and lower information asymmetries among big firms reduce the degree of conservatism. The positive and significant relation between size and conditional conservatism suggests that, on average, the impacts of political cost and litigation risk dominate the impacts of income aggregation and lower information asymmetries among big firms in our sample. However, we note the majority of prior studies find a negative association between size and conditional accounting conservatism (e.g. Khan, & Watts, 2009). A recent study by Ge et al. (2019) also find a positive but insignificant association between size and conditional conservatism (proxied by Ball and Shivakumar's (2005) model of conservatism). Future research could explore how size determines the degree of conditional conservatism in different scenarios.

shares.[12] Therefore, options listing could be considered as a natural experiment to explore the impact of options trading on underlying stocks, as well as on various corporate policies. However, there are some concerns about the endogeneity of the listing decision by exchanges (Mayhew, & Mihov, 2004) and homogeneity of the options listing effects on firms (Truong, & Corrado, 2014).[13] As such, our difference-in-difference estimation results should be interpreted with the above-mentioned limitation in mind.

To conduct our difference-in-difference analysis, we first identify a treatment sample of 733 firms listed on the options market for the first time. We choose a pool of non-listed firms that have no history of options trading in the OptionMetrics database. We require both the treatment sample and the pool of non-listed firms to possess all required data to calculate variables in equation 2 for the five years preceding and the year following the year during which options are initially traded. To select the control sample, we follow the matching procedure of previous options-trading studies (e.g., Mendenhall, & Fehrs, 1999; Naiker et al., 2013) by first calculating the rank of size, leverage, market to book value, and cash flow in the year of options listing for firms with and without listed options. We then calculate the absolute difference in ranks for each variable between the listed firms and each non-listed firm from the same year of options listing

[12]For example, the CBOE required the following criteria for the firms to be listed in the options market as of December 2020:1) the firm's security must be National Market System registered stock; 2) there are at least 7,000,000 publicly held shares of the underlying security; 3) there are at least 2000 shareholders; 4) trading volume of the underlying security must be at least 2,400,000 shares in the past 12 months; 5) the price of the security must be at least $3.00 for "covered security" (under Section 18(b)(1)(A) of the Securities Act of 1933) and at least $7.50 for "uncovered security" three days before CBOE issues a certificate for listing.

[13] Exchanges identify factors, such as the number of shares outstanding, as a criterion for options listing. However, Mayhew and Mihov (2004) find evidence that the options listing decision is also related to high trading volume, volatility, and market capitalization. They conclude that options listing is an endogenous decision in the context of studying the impact of options listings on underlying stock volatility. Moreover, as Truong and Corrado (2014) point out, the volume of options trading tends to be low following options listings; as such, the impact of options listing on a corporate policy such as financial reporting could be negligible. Truong and Corrado (2014) also provide evidence that the benefits of options trading are not "homogenous" across options-listed firms, but rather depend on trading opportunities available for informed traders. They conclude that researchers should use options trading volume to study the benefits of options trading instead of a binary variable (0 and 1) for option listing. Therefore, it is expected that there would be considerable treatment variations across options-listed firms.

and the same industry on the basis of its two-digit SIC code. Finally, we determine the listed firm's counterpart as the one with the smallest sum of absolute rank differences.

To perform the difference-in-difference estimation, we exclude the year of option listing and focus on the five years before and after the listing. We extend equation 2 as follows:

$$ACC_{i,t} = \beta_0 + \beta_1 DCFO_{i,t} + \beta_2 CFO_{i,t} + \beta_3 DCFO_{i,t} \times CFO_{i,t} + \beta_4 DCFO_{i,t} \times Volume_{i,t} + \quad (3)$$
$$\beta_5 CFO_{i,t} \times Volume_{i,t} + \beta_6 DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t} + \beta_1 Volume_{i,t} +$$
$$\beta_1 DCFO_{i,t} \times Treatment_{i,t} \times Post_{i,t} + \beta_1 CFO_{i,t} \times Treatment_{i,t} \times Post_{i,t} +$$
$$\beta_1 DCFO_{i,t} \times CFO_{i,t} \times Treatment_{i,t} \times Post_{i,t} + \beta_1 Treatment_{i,t} \times Post_{i,t} +$$
$$\beta_1 DCFO_{i,t} \times Treatment_{i,t} + \beta_1 CFO_{i,t} \times Treatment_{i,t} + \beta_1 DCFO_{i,t} \times CFO_{i,t} \times$$
$$Treatment_{i,t} + \beta_1 Treatment_{i,t} + \beta_1 DCFO_{i,t} \times Post_{i,t} + \beta_1 CFO_{i,t} \times Post_{i,t} +$$
$$\beta_1 DCFO_{i,t} \times CFO_{i,t} \times Post_{i,t} + \beta_1 Post_{i,t} +$$
$$\sum \beta (Control\ variables\ and\ ther\ interaction\ with\ CFO\ and\ DFO) + \varepsilon$$

Where $Treatment_{i,t}$ is a dummy variable equal to 1 if a firm belongs to the treatment sample and 0 otherwise. $Post_{i,t}$ is a dummy variable equal to 1 for the years following the year of options trading for both option listed and matched firms and equal to 0 for the years preceding the options listing. The variable of interest in the above equation is $DCFO_{i,t} \times CFO_{i,t} \times Treatment_{i,t} \times Post_{i,t}$. The negative (positive) sign of coefficient on this variable indicates a decrease (increase) in the degree of conditional conservatism following option listing among the treatment group.

Table 3 presents results for our difference-in-difference analysis. The coefficient on the interaction term between $DCFO_{i,t}, CFO_{i,t}, Treatment_{i,t}$, and $Post_{i,t}$ is negative and significant (-1.324, $p < 0.01$), suggesting that, on average, firms exhibit less conditional conservatism following

options listing. The value of adjusted R-squared is similar to the past studies that use difference-in-differences analysis in conditional conservatism (e.g., Khan and Lo 2019).

[Insert Table 3 about here]

2.5.3 Additional analyses

In this section, we conduct additional analyses to gain further insights into the relation between options trading volume and conditional conservatism. We report only the second stage of 2SLS regressions, which are estimated using moneyness as the instrument variable.[14] For ease of exposition, results from regressions without control variables are not provided. Overall, the results from regressions without control variables are consistent with those reported.

Firm size, investment cycle length, and asset tangibility

We consider that an active options trading market reduces the demand for conditional conservatism by alleviating information asymmetries between insiders and outsiders. In this subsection, we examine subsamples of firms that are expected to suffer more (or less) from information asymmetry problems. More specifically, we use firm size, investment cycle length, and asset tangibility as proxies for expected information asymmetries.[15] The rationale for using size (the total assets at the end of the year) in our analysis is that larger firms benefit from a better information environment since they are more visible, and media and capital market participants have a greater incentive to follow them (Freeman, 1987). As suggested by Khan and Watts (2009), the length of the investment cycle (defined as depreciation expense scaled by total assets at the beginning of the year) is associated with uncertainty, which aggravates information asymmetries.

[14] Similar results are obtained when using open interest as instrument variable (untabulated).
[15] We do not use direct proxies for information asymmetries as options trading alleviates the level of information asymmetries (Hu, 2019). Rather, we use proxies for potential information asymmetries to examine how options trading reduces the demand for conservatism by reducing information asymmetries.

The presence of intangible assets is associated with "inherent uncertainty," which exacerbates information asymmetries (Barth, Kasznik, & McNichols, 2001). As such, we employ tangibility (the ratio of property, plant, and equipment to total assets at the beginning of the year) as a proxy for potential information asymmetry.

To examine how sensitive our results are to potential information asymmetry, subsamples are created by dividing the sample into terciles based on firm size, investment cycle duration, and asset tangibility. Table 4 presents results of the two extreme terciles of these partitions, with the middle tercile observations being left out. Table 4 Panel A presents results for subsamples of firm size. While the coefficient of interest $DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$ is significant in the subsample of small firms (-0.070, $p < 0.01$; -0.085, $p < 0.01$), it is non-significant in the subsample of large firms (0.31, $P > 0.191$; 0.231, $p > 0.351$). These results suggest that an active options trading market has little or no effect on the demand for conditional conservatism among large firms, which have a transparent information environment.

[Insert Table 4 about here]

Table 4 Panel B reports results for subsamples of firms with long and short investment cycles. The coefficient of the variable of interest, $DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$, is not significant in the model specification without control variables (-0.016, $P > 0.450$) and it is weakly (-0.047, $p < 0.058$) significant in the specification with control variables for the subsample of firms with a short investment cycle. In contrast, it is significant in both equations for the subsample of firms with a long investment cycle (-0.062, $p < 0.01$; -0.147, $p < p\ 0.01$), implying that an active options market reduces demand for conditional conservatism when there is a high level of uncertainty

about the firm's operations. Table 4 Panel C displays results for subsamples of firms with high and low asset tangibility. The coefficient on $DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$ is significant in our specifications for the subsample of firms with low asset tangibility (-0.058, P<0.01& -0.108, P<0.01). However, our coefficient of interest is insignificant in both equations for the subsample of firms with how asset tangibility, confirming that options trading volume is negatively associated with conditional accounting conservatism in the presence of potentially high information asymmetries. Collectively, these results suggest that options trading volume is associated with a lower level of conditional accounting conservatism when there is a high likelihood of information asymmetries.

Economic policy uncertainty

So far, results show that the negative impact of options trading on conditional accounting conservatism is more pronounced when there is a higher degree of uncertainty, which exacerbates information asymmetries. In this subsection, we examine how options trading influences conditional conservatism under different levels of EPU. Unlike other types of uncertainty, EPU is exogenous to managers, as they largely have no control over government policies and elections (Nagar, Schoenfeld, & Wellman, 2019). Due to this unique feature, examining the role of EPU in our setting would be interesting. Nagar et al. (2019) provide evidence that managers increase voluntary disclosure when EPU is high. However, they document that managers are not able to fully mitigate the EPU-induced information asymmetry by increasing voluntary disclosure. Dai and Ngo (2021) show that US gubernatorial elections, which are associated with policy uncertainty, are associated with a higher degree of conditional conservatism.

Options traders continuously look for information concealed by managers and ultimately reduce uncertainty about a firm by bringing the hidden information to the market. However, we argue that options trading may not alleviate the EPU-induced information asymmetry, because this type of uncertainty emanates from outside the firm. As such, we expect that options trading would have little or no impact on the association between high levels of EPU and conditional accounting conservatism. To examine this prediction, we divide our sample into terciles based on the average Baker, Bloom and Davis (2016) index over every fiscal year, our measure of EPU. Table 5 presents our results for this subsection. Similar to our previous analyses, we show results for the two extreme terciles (high/low), leaving out the middle tercile observations. Consistent with our expectation, for the equation without control variables, the coefficient on the interaction between $DCFO_{i,t}, CFO_{i,t}, Volume_{i,t}$ is not significant in the subsample of high EPU periods (-0.017, $p > 0.312$); however, it is significant in the subsample of low EPU periods (-0.067, $p < 0.01$). For the specification with control variable, the coefficient for $DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$ is significant under both low (-0.136, $p < 0.01$) and high EPU periods (-0.055, $p < 0.01$). However, consistent with our expectation, the value of the coefficient of interest is significantly higher ($p < 0.01$) in the subsample of high EPU periods, indicating that *Volume* has less influence on conditional conservatism under high EPU periods than under low EPU periods. In other words, when the source of uncertainty is largely exogenous to the firm and capital markets, an active options market has less influence on the level of conditional conservatism.

[Insert Table 5 about here]

Financial analyst coverage

Next, we explore how analyst coverage influences the impact of options trading on conditional conservatism. Sun and Liu (2011) hypothesize that financial analysts may affect

conservatism in two opposite ways. On the one hand, financial analysts can act as a corporate governance mechanism and discipline managers to recognize bad news in a more timely fashion. On the other hand, financial analysts can serve as information intermediaries, decreasing the information asymmetries between managers and capital markets, if they play such a role, they may reduce the demand for conditional conservatism. Their empirical analyses show a positive association between financial analyst coverage and conditional conservatism, indicating that the governance function of analysts dominates their role as information intermediaries in shaping the financial reporting strategy of firms.

If an active options market is a substitute for analyst coverage in reducing information asymmetries between managers and investors, then the negative impact of options trading on conservatism is expected to be more prominent when analyst coverage is low. However, if an active options market acts as a complement for high analyst coverage, then it is expected to be more strongly related to a lower degree of conditional conservatism.

To investigate the impact of analyst coverage on the association between options trading and conditional conservatism, we partition firms into terciles based on the number of analysts following a firm. Table 6 shows results for the subsamples of firms with high and low analyst coverage (the middle tercile is left out). The coefficient on the interactions between $DCFO_{i,t}, CFO_{i,t}, Volume_{i,t}$ is negative and significant in all specifications. However, the absolute value of the coefficient of interest is higher in the subsample of high analyst coverage and the difference between the coefficient of interest in corresponding specifications is significant ($P<0.01$). Hence, the impact of options trading on conditional conservatism appears to be greater when there is more extensive analyst coverage.

[Insert Table 6 about here]

Investor sentiment

We next investigate how investor sentiment influences the association between options trading and conditional accounting conservatism. Baker and Wurgler (2006, 2007) define investor sentiment as optimism or pessimism towards stocks' and firms' future performances. Ge et al. (2019) argue that, during high sentiment periods, optimistic investors overvalue firms; however, after a high sentiment period, investors may suffer from stock price declines. As such, investors who suffer from the price declines may launch class action suits, accusing managers of misleading them by not reporting losses in a timely manner. Therefore, managers have a strong incentive to employ conditional accounting conservatism to reduce the litigation risk that follows high sentiment periods. Consistent with this argument, Ge et al. (2019) document a high (low) degree of conditional conservatism during high (low) sentiment periods. The literature shows that an active options trading market leads to stock price efficiency (e.g., Cao et al., 2020a; Hu, 2018; Roll et al., 2009). Hence, options trading reduces the likelihood of overpricing when sentiment is high, which can alleviate some of the litigation risks managers face. Consequently, we expect that the negative impact of options trading on conditional conservatism will be more prominent during high sentiment periods.

To examine the sensitivity of our results to investor sentiment, we partition the sample into terciles based on the average Baker and Wurgler's (2006, 2007) index over every fiscal year, our proxy for investor sentiment. For the model specification without control variables, the coefficient of interest, the interaction between $DCFO_{i,t}, CFO_{i,t}, Volume_{i,t}$ is not significant in the subsample of low investors' sentiment (-0.017, $p > 0.434$); however, it is significant in the subsample of high sentiment periods (-0.076, $p < 0.01$). For the specification with control variables, the negative impact of options trading on conditional conservatism is also significantly higher ($p < 0.01$) in the

subsample of high sentiment periods. Consistent with our prediction, the reported results in Table 5 indicate that the role of options trading in reducing conditional conservatism is more prominent in high sentiment periods.

[Insert Table 7 about here]

2.5.4 Robustness tests

An alternative measure of conditional conservatism

To provide further confidence in our results, we now employ Basu's (1997) persistence of earnings changes model as the alternative model for measuring conditional conservatism. This model does not rely on stock returns. The intuition behind this model is that under conditional accounting conservatism, firms report economic loss (bad news) as soon as anticipated. Hence, firms report the "capitalized value of bad news." In contrast, firms require a "higher degree of verification" for reporting economic gains (good news) and thus they partially recognize "capitalized value of good news" as gains. Consequently, they partially recognize the "capitalized value of good news" in subsequent periods. Therefore, under conditional accounting conservatism, positive earnings changes are more persistent than negative earnings changes. Basu's (1997) persistence of earnings changes model is as follows:

$$\Delta NI_{i,t+1} = \beta_0 + \beta_1 D\Delta NI_{i,t} + \beta_2 \Delta NI_{i,t} + \beta_3 D\Delta NI_{i,t} \times \Delta NI_{i,t} + \varepsilon \quad (4)$$

Where $\Delta NI_{i,t+1}$ is the changes in income before extraordinary items from fiscal year t+1 to year t deflated by total assets at the beginning of year t for firm i, and $\Delta NI_{i,t}$ is the one-year lagged value of $\Delta NI_{i,t+1}$. $D\Delta NI_{i,t}$ is a dummy variable that equal 1 if $\Delta NI_{i,t}$ <0 and 0 otherwise. If economic losses (bad news) are recognized in a timelier fashion than economic gains (good

news), negative earnings changes are expected to be less persistent than positive earnings changes and, as a result, the association between current negative earnings changes and future earnings changes will be negative. As such, the negative sign of the coefficient on $D\Delta NI_{i,t} \times \Delta NI_{i,t}$ captures the degree of conditional conservatism.

To employ Basu's (1997) persistence of earnings changes model, we add the options trading volume ($Volume_{i,t}$), size ($Size_{i,t}$), leverage ($Lev_{i,t}$), market to book value ($MB_{i,t}$), and their interactions with Basu's (1997) model variables. The modified model is as follows:

$$\begin{aligned}\Delta NI_{i,t+1} = {} & \beta_0+\beta_1 D\Delta NI_{i,t}+\beta_2 \Delta NI_{i,t}+\beta_3 D\Delta NI_{i,t} \times \Delta NI_{i,t} + \beta_4 D\Delta NI_{i,t} \times Volume_{i,t} + \\ & \beta_5 \Delta NI_{i,t} \times Volume_{i,t} + \beta_6 D\Delta NI_{i,t} \times \Delta NI_{i,t} \times Volume_{i,t} + \beta_7 Volume_{i,t} + \\ & \beta_8 D\Delta NI_{i,t} \times Size_{i,t} + \beta_9 \Delta NI_{i,t} \times Size_{i,t} + \beta_{10} D\Delta NI_{i,t} \times \Delta NI_{i,t} \times Size_{i,t} + \\ & \beta_{11} Size_{i,t} + \beta_{12} D\Delta NI_{i,t} \times Lev_{i,t} + \beta_{13} \Delta NI_{i,t} \times Lev_{i,t} + \beta_{14} D\Delta NI_{i,t} \times \Delta NI_{i,t} \times \\ & Lev_{i,t} + \beta_{15} Lev_{i,t} + \beta_{16} D\Delta NI_{i,t} \times MB_{i,t} + \beta_{17} \Delta NI_{i,t} \times MB_{i,t} + \beta_{18} D\Delta NI_{i,t} \times \\ & \Delta NI_{i,t} \times MB_{i,t} + \beta_{19} MB_{i,t} + \varepsilon\varepsilon\end{aligned} \quad (5)$$

The key variable of interest is $D\Delta NI_{i,t} \times \Delta NI_{i,t} \times Volume_{i,t}$. If the coefficient on this variable is positive, then it can be concluded that the persistence of the earnings changes model confirms the negative impact of options trading on conditional conservatism. Using the same approach as in the main results, we apply the 2SLS method to address the concern regarding potential estimation errors stemming from endogeneity and omitted variables.

Table 8 Panel A presents results for the first stage of our 2SLS method with either moneyness or open interest as instrument variables. The results for the second stage of our 2SLS method are reported in Table 8 Panel B. All statistical tests confirm the validity of our 2SLS regressions and the instrument variables. Our coefficient of interest, for the interaction

between $D\Delta NI_{i,t}$, $\Delta NI_{i,t}$, and $Volume_{i,t}$, is positive and significant, suggesting that an active options market is associated with less conditional conservatism.

[Insert Table 8 about here]

Other robustness analyses

In untabulated tests, we include the following control variables: sales growth (measured as changes in sales from year t to year t-1 deflated by beginning total assets), asset tangibility (measured as property, plant, and equipment scaled by beginning total assets), and a dummy variable that equals 1 if a firm operates in a highly litigious industry[16] and 0 otherwise (Deng, Li, Lobo, & Shao, 2018). Results remain qualitatively unchanged after including these additional control variables. In untabulated tests, following Roll et al. (2009), we use weighted moneyness (weighted by the proportion of total options trading volume for each stock) as the instrument variable, and we obtained similar results to those in Table 2.

2.6 Conclusion

Recent developments in the US options market as well as the current debate regarding the necessity of accounting conservatism motivate our investigation of whether and how options trading reduces the demand for conditional conservatism. Options traders improve a firm`s information environment and enhance market efficiency, as they have superior ability in interpreting public information as well as in acquiring and conveying private information to investors. We argue that options trading decreases the demand for conservatism by reducing

[16] Following prior conservatism literature (e.g., Deng et al., 2018), we define firms that belong to Biotechnology (SIC codes 2833–2836 and 8731–8734), Computers (SIC codes 3570–3577 and 7370–7374), Electronics (SIC codes 3600–3674), and Retailing (SIC codes 5200–5961) as evolving in a highly litigious environment. Firms in these industries are assigning a binary variable of 1, 0 otherwise.

information asymmetry and by lowering agency shareholders-management agency conflicts, which are the two main reasons outsiders demand conservatism.

Using 2SLS regression analysis, we find that options trading is associated with a reduction in the level of conditional accounting conservatism as proxied by the accrual-operating cash flow model of Ball and Shivakumar (2005). Our findings are robust to the inclusion of additional control variables and use of an alternative proxy for conditional conservatism. Our difference-in-differences analysis of conditional conservatism surrounding options listing yields evidence that firms exhibit a lower degree of conditional conservatism after being listed on the options market. Further analyses reveal that options trading effectively affects conditional conservatism in small firms, and options trading's impacts are more pronounced in firms with low asset tangibility and firms with long investment cycles. We also find that options trading has a greater influence on conservatism when exogenous uncertainty is low, financial analyst coverage is high, and investor sentiment is high.

As with any empirical study of the association between options trading and corporate policies, our results are subject to potential biases caused by omitted variables and reverse causality. The 2SLS approach of using two different instrument variables is employed to address the issue of omitted variables and reverse causality. Despite this limitation, overall our evidence suggests that an active options market contributes to the firms' information environments and, thus, reduces the need for conditional accounting conservatism.

Our study has implications for standard setters by providing evidence that the demand for conditional conservatism varies with the development in the options market and, thus, the impact of the exclusion (or inclusion) of conservatism from financial standards on capital markets may depend on the development of the options market. This study offers insight into the future of the

demand for conditional conservatism by showing that, everything else being equal, the ongoing development of the options trading market reduces the need for conditional conservatism in the future. We believe our study opens the way for further research on the informational dynamics between options markets and corporate financial reporting. Future research could explore whether our results are generalizable to other countries and how different institutional environments influence the options markets' ability to reduce the demand for conditional conservatism.

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Appendix

Variable definition

Variable	Definition
Variables in the Ball and Shivakumar (2005) model	
$ACC_{i,t}$	Total accruals is defined as the difference between net income before extraordinary items (#IBC) and cash flow from operating activities (#OANCF), deflated by total assets at the beginning of the year (#AT)
$CFO_{i,t}$	Operating cash flow (#OANCF) for firm i in year t, scaled by total assets at the beginning of the year (#AT)
$DCFO_{i,t}$	A dummy variable that equals to 1 if $CFO_{i,t}$ is negative and 0 otherwise
Options trading related variables	
$Volume_{i,t}$	Natural logarithm of 1 plus the aggregated annual options trading volume (in $10,000) for firm i and the fiscal year t
$Money_{i,t}$	Annual average of the absolute deviation of the option's strike price from the stock's market price ($\left\lvert \ln\left(\frac{stock\ price}{strike\ price}\right)\right\rvert$) at the end of day
$Open_{i,t}$	Natural logarithm of 1 plus annual average of open option contracts
Control variables	
$Size_{i,t}$	Natural logarithm of the total assets at the end of the year (#AT)
$LEV_{i,t}$	Sum of long-term debt (#DLTT) and current debt (#DLC) scaled by market value of equity at the end of the year (#CSHO × #PRCC_F)
$MB_{i,t}$	Market-to-book value measured as the market value of equity (#CSHO×#PRCC_F) divided by the book value of equity at the end of the year (#CEQ)
Variables used in creating subsamples for additional analysis	
Investment Cycle	Depreciation expense (#DP) scaled by total assets at the beginning of the year (#AT)
Asset Tangibility	Ratio of property, plant, and equipment (#PPEGT) total assets at the beginning of the year (#AT)
Investor Sentiment	The average Baker and Wurgler's (2006, 2007) index over the fiscal year
EPU Index	The average Baker et al.'s (2016) EPU index over the fiscal year
Analyst coverage	The average number of financial analysts following the firm during the fiscal year
Variables in the Basu (1997) persistence of earnings changes model	
$\Delta NI_{i,t+1}$	Income before extraordinary items (#IB) from fiscal year t+1 to year t deflated by total assets in the beginning of year t (#AT)
$\Delta NI_{i,t}$	Income before extraordinary items (#IB) from fiscal year t to year t-1 deflated by total assets in the beginning of year t-1 (#AT)
$D\Delta NI_{,t}$	A dummy variable that equals to 1 if $\Delta NI_{i,t}$ is negative and 0 otherwise

Table 2.1: Descriptive statistics

Panel A: Summary statistics for key variables

Variable	N	Mean	SD	Median	P5	P25	P75	P95
ACC	37887	-0.072	0.095	-0.058	-0.238	-0.105	-0.024	0.052
Volume	37887	2.229	1.804	1.813	0.096	0.678	3.444	5.745
CFO	37887	0.076	0.149	0.093	-0.208	0.040	0.150	0.266
DCFO	37887	0.16	0.366	0.000	0.000	0.000	0.000	1.000
Size	37887	6.995	1.647	6.934	4.364	5.799	8.121	9.902
LEV	37887	0.396	0.699	0.159	0.000	0.012	0.456	1.605
MB	37887	3.321	4.102	2.367	0.599	1.465	4.007	10.015

Panel B: Pearson correlation coefficients

Variable	*ACC*	***Volume***	***CFO***	***NCFO***	***Size***	***LEV***	***MB***
ACC	1						
Volume	-0.008	1					
CFO	-0.062***	0.149***	1				
DCFO	-0.016***	-0.098***	-0.733***	1			
Size	0.143***	0.532***	0.302***	-0.399***	1		
LEV	-0.045***	-0.053***	-0.06***	-0.023***	0.245***	1	
MB	-0.047***	0.179***	0.046***	0.020***	-0.051***	-0.205***	1

Table 1 displays summary statistics for variables used in the main analysis. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level,

Table 2.2: The 2SLS regressions of options trading volume and conditional conservatism

Panel A: The first-stage IV regression estimates with moneyness as the instrument variable

	$Volume_{i,t}$		$DCFO_{i,t}\times Volume_{i,t}$		$CFO_{i,t}\times Volume_{i,t}$		$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	
$Money_{i,t}$	0.433***	0.328***	0.000	0.000	0.005***	0.002	0.000***	0.000
	(31.89)	(28.86)	(0.62)	(-0.43)	(2.9)	(1.05)	(-2.67)	(-1.64)
$DCFO_{i,t}\times Money_{i,t}$	-0.055***	-0.015	0.384***	0.324***	-0.008*	-0.002	-0.002	0.001
	(-2.81)	(-0.88)	(23.3)	(21.55)	(-1.92)	(-0.45)	(-0.53)	(0.44)
$CFO_{i,t}\times Money_{i,t}$	-0.267***	-0.236***	0.002	0.003	0.344***	0.271***	0.000	0.000
	(-4.02)	(-4.24)	(0.85)	(1.55)	(21.76)	(18.6)	(0.02)	(-0.74)
$DCFO_{i,t}\times CFO_{i,t}\times Money_{i,t}$	0.296***	0.231***	0.043	0.025	0.009	0.046	0.356***	0.321***
	(2.92)	(2.69)	(0.57)	(0.39)	(0.23)	(1.31)	(9.44)	(10.15)
$DCFO_{i,t}$	2.863***	1.661***	-0.033**	0.009	2.148***	-0.941***	0.009***	0.003
	(14.46)	(3.01)	(-2.47)	(0.23)	(43.33)	(-6.63)	(4.65)	(0.5)
$CFO_{i,t}$	-0.135***	0.972***	1.104***	-1.046***	0.061***	0.152***	0.013	0.065***
	(-3.43)	(8.01)	(34.98)	(-10.58)	(7.39)	(6.44)	(1.88)*	(3.51)
$DCFO_{i,t}\times CFO_{i,t}$	-2.835***	-1.992***	-0.093	-0.283	-0.888***	0.331	1.232***	-0.611***
	(-11)	(-2.9)	(-0.63)	(-0.71)	(-9.96)	(1.39)	(16.83)	(-3.25)
Observations	37887	37887	37887	37887	37887	37887	37887	37887
Control variables	NO	Y	NO	Y	NO	Y	NO	Y
Industry and Year FX	Y	Y	Y	Y	Y	Y	Y	Y
F test (Prob>F)	764.31 (0.0000)	551.81 (0.0000)	223.37 (0.0000)	181.97 (0.0000)	661.50 (0.0000)	448.12 (0.0000)	132.58 (0.0000)	90.45 (0.0000)
Sanderson Windmeijer multivariate F test (Prob>F)	1744.40 (0.0000)	1342.07 (0.0000)	2009.60 (0.0000)	1609.03 (0.0000)	1444.59 (0.0000)	1042.34 (0.0000)	1654.90 (0.0000)	1258.82 (0.0000)

Table 2.2: The 2SLS regressions of options trading volume and conditional conservatism

Panel B: The first-stage IV regression estimates with open interest as the instrument variable

	$Volume_{i,t}$		$DCFO_{i,t}\times Volume_{i,t}$		$CFO_{i,t}\times Volume_{i,t}$		$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	
$Open_{i,t}$	0.744*** (95.56)	0.67*** (86.6)	0.002*** (3.24)	0.001* (1.69)	-0.012*** (-12.4)	-0.256*** (-10.59)	0.000*** (-3.79)	0.000 (-1.25)
$DCFO_{i,t}\times Open_{i,t}$	0.015 (1.11)	0.005 (0.36)	0.749*** (62.14)	0.672*** (59.27)	0.009*** (3.68)***	0.014*** (5.88)	-0.004* (-1.73)	0.001 (0.38)
$CFO_{i,t}\times Open_{i,t}$	0.77*** (16.89)	0.696*** (14)	0.015*** (3.9)	0.018*** (4.62)	0.969*** (93.78)	0.898*** (72.22)	-0.003*** (-4.05)	-0.003*** (-4.59)
$DCFO_{i,t}\times CFO_{i,t}\times Open_{i,t}$	-0.719*** (-10.58)	-0.657*** (-9.76)	0.043 (0.91)	0.042 (0.99)	-0.267*** (-10.58)	-0.013*** (-11.37)	0.705*** (30.53)	0.648*** (31.36)
$DCFO_{i,t}$	-4.25*** (-11.3)	-3.827*** (-9.09)	-0.152*** (-4.47)	-0.112*** (-3.23)	-5.416*** (-62.96)	0.062 (0.29)	0.031*** (4.9)	0.021*** (3.55)
$CFO_{i,t}$	-0.195* (-1.91)	-0.153 (-1.37)	-4.323*** (-47.44)	-4.921*** (-49.51)	-0.047** (-2.38)	-0.095*** (-4.78)	0.03* (1.66)	-0.031* (-1.79)
$DCFO_{i,t}\times CFO_{i,t}$	4.105*** (7.43)	5.706*** (9.16)	-0.128 (-0.34)	1.846*** (4.28)	1.412*** (6.89)	-5.81*** (-62.99)	-4.051*** (-21.76)	-5.783*** (-30.14)
Observations	37887	37887	37887	37887	37887	37887	37887	37887
Control variables	NO	Y	NO	Y	NO	Y	NO	Y
Industry and Year FX	Y	Y	Y	Y	Y	Y	Y	Y
F test (Prob>F)	8231.22 (0.0000)	6444.36 0.0000	1620.40 0.0000	1461.34 0.0000	8052.00 0.0000	5662.31 0.0000	1003.39 0.0000	764.60 0.0000
Sanderson Windmeijer multivariate F test (Prob>F)	18715.68 0.0000	15333.04 0.0000	18740.22 0.0000	15433.55 0.0000	16602.98 0.0000	11312.74 0.0000	18376.05 0.0000	13396.74 0.0000

Panel C: Second-stage regression estimates for conditional conservatism

	Dependent variable: $ACC_{i,t}$							
	Estimations With Moneyness as Instrument for Volume				**Estimations With Open Interest as Instrument for Volume**			
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$	-0.013***	-3.05	-0.098***	-6.08	-0.044***	-4.01	-0.122***	-9.09
$DCFO_{i,t} \times Volume_{i,t}$	-0.003**	-2.58	-0.015***	-5.03	-0.005**	-2.46	-0.014***	-5.61
$CFO_{i,t} \times Volume_{i,t}$	0.006***	4.12	0.058***	6.79	0.024***	4.76	0.067***	9.96
$Volume_{i,t}$	-0.001***	-3.64	-0.013***	-9.39	-0.003***	-3.81	-0.014***	-14.29
$DCFO_{i,t} \times CFO_{i,t}$	0.031***	16.16	-0.413***	-5.4	0.518***	18.04	-0.459***	-6.14
$DCFO_{i,t}$	-0.006	-1.44	-0.126***	-8.69	-0.01**	-2.1	-0.120***	-8.37
$CFO_{i,t}$	-0.020***	-17.56	0.145***	2.91	-0.344***	-19.35	0.170***	3.5
$DCFO_{i,t} \times CFO_{i,t} \times Size_{i,t}$			0.162***	9.31			0.180***	11.2
$DCFO_{i,t} \times Size_{i,t}$			0.026***	9.65			0.025***	9.59
$CFO_{i,t} \times Size_{i,t}$			-0.083***	-9.32			-0.090***	-10.98
$Size_{i,t}$			0.021***	16.11			0.022***	18.98
$DCFO_{i,t} \times CFO_{i,t} \times Lev_{i,t}$			0.027	0.89			0.016	0.54
$DCFO_{i,t} \times Lev_{i,t}$			-0.017***	-4.42			-0.016***	-4.21
$CFO_{i,t} \times Lev_{i,t}$			-0.139***	-6.24			-0.132***	-6
$CFO_{i,t}$			-0.014***	-7.91			-0.015***	-8.34
$DCFO_{i,t} \times CFO_{i,t} \times MB_{i,t}$			0.007***	2.02			0.007**	2.3
$DCFO_{i,t} \times MB_{i,t}$			0.000	0.26			0.000	0.05
$CFO_{i,t} \times MB_{i,t}$			-0.003	-1.46			-0.004*	-1.8
$MB_{i,t}$			0.001*	1.9			0.001**	2.14
Industry and Year Fixed Effects	YES		YES		YES		YES	
Observations	37887		37887		37887		37887	

Diagnostic Tests				
Centered R2	0.0528	0.1073	0.055	0.1077
F test	130.98***	116.68***	127.63***	121.09***
Kleibergen-Paap rk LM Chi-sq	559.40***	672.76***	186.60***	224.63***
Kleibergen-Paap rk Wald F	430.81	413.80	330.43	459.53
Cragg-Donald Wald F statistic	10364.07	7186.85	16198.67	16097.03
Stock-Yogo weak ID F test critical values:				
5% maximal IV relative bias	16.85	16.85	16.85	16.85
10% maximal IV size	24.58	24.58	24.58	24.58
Anderson-Rubin Wald test F (P-value)	10.38***	45.96***	9.30***	87.41***
Anderson-Rubin Wald test Chi-sq (P-value)	41.63***	184.39***	37.31***	350.63***

Stock-Wright LM S statistic Chi-sq (P-value)	41.99***	160.94***	37.25***	293.23***	
Hansen J statistic	0.0000	0.0000	0.000		0.000

This Table presents the regression results of estimating equation 2 by using the 2SLS approach. The sample period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Table 2.3: Difference-in-differences analysis based on options listing

$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO \times CFO \times Treat \times Post$	-2.194***	-4.4	-1.324***	-2.81
$DCFO \times Treat \times Post$	-0.499***	-6.45	-0.245***	-3.29
$CFO \times Treat \times Post$	0.05	0.37	0.11	0.99
$Treat \times Post$	0.002	0.11	-0.002	-0.17
$DCFO \times CFO \times Treat$	2.911***	10.6	1.527***	5.8
$DCFO \times Treat$	0.672***	7.3	0.270***	3.3
$CFO \times Treat$	-0.274**	-2.06	-0.305***	-2.67
$Treat$	0.035**	2.08	0.037**	2.58
$DCFO \times CFO \times Post$	0.323	0.72	1.025**	2.5
$DCFO \times Post$	0.022	0.32	0.226***	3.91
$CFO \times Post$	0.19	1.51	0.263***	3.16
$Post$	-0.023	-1.31	-0.03***	-2.68
$DCFO \times CFO$	-0.334**	-2.53	0.533**	2.29
$DCFO$	-0.14***	-3.8	0.023	0.29
CFO	-0.259**	-1.99	0.001	0.00
$Constant$	-0.038**	-2.04	-0.091***	-3.53
$Control\ Variables\ included$	NO		YES	
Number of obs	14,660		14,660	
Adj R-squared	0.7182		0.8157	

This Table presents difference-in-differences analysis based on options listing. The sample period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Table 2.4: Cross-sectional analyses: firm size, investment cycle length, and asset tangibility

Panel A: Subsample of firms with different size

	Small Size Firms				Big Size Firms			
$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	-0.070***	-3.02	-0.085***	-3.41	0.31	1.31	0.231	0.93
$DCFO_{i,t}\times Volume_{i,t}$	-0.013***	-2.6	-0.016***	-3.03	0.003	0.22	-0.002	-0.15
$CFO_{i,t}\times Volume_{i,t}$	0.033**	1.93	0.042**	2.3	0.045***	4	0.051***	3.87
$Volume_{i,t}$	-0.007**	-2.14	-0.009***	-2.64	-0.007***	-4.77	-0.012***	-6.69
$DCFO_{i,t}\times CFO_{i,t}$	0.391***	8.87	-0.560***	-3.13	-1.092	-1.07	0.018	0.01
$DCFO_{i,t}$	-0.006	-0.8	-0.056*	-1.65	0.005	0.12	-0.179	-1.64
$CFO_{i,t}$	-0.256***	-7.68	0.332**	2.12	-0.525***	-11.33	-0.011	-0.08
Control Variables	NO		YES		NO		YES	
Industry and Year FX	YES		YES		YES		YES	
Observations	12629		12629		12629		12629	
Centered R2	0.0228		0.0548		0.1469		0.2214	
F test (Prob>F)	33.70 (0.0000)		25.02 (0.0000)		102.85 (0.0000)		64.92 (0.0000)	

Panel B:Subsample of firms with different investment cycle length

	Firms with Short Investment Cycles				Firms with Long Investment Cycles			
$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	-0.016	-0.76	-0.047*	-1.9	-0.062***	-2.66	-0.147***	-5.39
$DCFO_{i,t}\times Volume_{i,t}$	-0.002	-0.63	-0.009**	-2.19	-0.016***	-3.13	-0.023***	-3.61
$CFO_{i,t}\times Volume_{i,t}$	0.02	1.43	0.045**	2.49	0.022**	2.37	0.058***	4.42
$Volume_{i,t}$	-0.004**	-2.36	-0.011***	-4.98	-0.003	-1.56	-0.015***	-6.08
$DCO_{i,t}\times CFO_{i,t}$	0.426***	7.8	-0.286**	-2.53	0.521***	9.65	-0.594***	-4.2
$DCFO_{i,t}$	0.006	0.73	-0.119***	-6.07	-0.022**	-2.15	-0.102***	-3.35
$CFO_{i,t}$	-0.304***	-7.11	0.11	1.23	-0.32***	-10.92	0.205**	2.46
Control Variables	NO		YES		NO		YES	
Industry and Year FX	YES		YES		YES		YES	
Observations	12617		12617		12616		12616	
Centered R2	0.0413		0.1066		0.0597		0.1038	
F test (Prob>F)	37.46 (0.0000)		43.98 (0.0000)		56.01 (0.0000)		44.30 (0.0000)	

Table 2.4: Cross-sectional analyses: firm size, investment cycle length, and asset tangibility

Panel C:Subsample of firms with different level of asset tangibility

	Firms with Low Asset Tangibility				Firms with High Asset Tangibility			
$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	-0.058***	-3.25	-0.108***	-5.24	-0.022	-0.58	-0.072	-1.58
$DCFO_{i,t}\times Volume_{i,t}$	-0.008*	-1.9	-0.015***	-3.07	-0.004	-0.79	-0.017***	-2.83
$CFO_{i,t}\times Volume_{i,t}$	0.03**	2.32	0.063***	4.07	0.027***	2.9	0.05***	3.92
$Volume_{i,t}$	-0.007***	-3.43	-0.017***	-6.49	-0.002	-1.16	-0.01***	-4.84
$DCFO_{i,t}\times CFO_{i,t}$	0.445***	9.18	-0.552***	-4.94	0.659***	7.86	-0.052	-0.25
$DCFO_{i,t}$	-0.006	-0.64	-0.14***	-6.46	0.004	0.37	-0.113***	-3.76
$CFO_{i,t}$	-0.303***	-7.75	0.233**	2.6	-0.39***	-13.54	0.017	0.22
$Control\ Variables$	NO		YES		NO		YES	
Industry and Year FX	YES		YES		YES		YES	
Observations	12577		12577		12580		12580	
Centered R2	0.0161		0.0797		0.1112		0.1728	
F test (Prob>F)	33.91 (0.0000)		37.86 (0.0000)		66.54 (0.0000)		54.52 (0.0000)	

This Table presents the regression results of estimating equation 2 by using 2SLS approach for subsamples of upper and lower terciles based on, size, investment cycle length the level of asset tangibility. Moneyness is employed as the instrument variable. The subsamples period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Table 2.5: EPU and the association between options trading volume and conditional conservatism

	Low Economic Policy Periods				High Economic Policy Periods			
$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	-0.067***	-3.44	-0.136***	-6.06	-0.017	-1.01	-0.055***	-2.96
$DCFO_{i,t}\times Volume_{i,t}$	-0.005	-1.32	-0.009*	-1.95	-0.006*	-1.65	-0.016***	-3.64
$CFO_{i,t}\times Volume_{i,t}$	0.037***	3.66	0.073***	5.45	0.012	1.40	0.033***	3.05
$Volume_{i,t}$	-0.006***	-3.10	-0.015***	-6.01	-0.001	-0.39	-0.010***	-5.42
$DCFO_{i,t}\times CFO_{i,t}$	0.685***	13.35	-0.447***	-3.58	0.406***	9.30	-0.366***	-3.00
$DCFO_{i,t}$	0.005	0.51	-0.085***	-3.85	-0.012	-1.49	-0.158***	-6.04
$CFO_{i,t}$	-0.420***	-14.35	0.149*	1.94	-0.292***	-10.57	0.117	1.38
Control Variables	NO		YES		NO		YES	
Industry and Year FX	YES		YES		YES		YES	
Observations	12623		12623		12487		12487	
Centered R2	0.0823		0.1345		0.0448		0.1215	
F test (Prob>F)	87.85 (0.0000)		73.63 (0.0000)		41.69 (0.0000)		49.15 (0.0000)	

This Table presents the regression results of estimating equation 2 by using 2SLS approach for two subsamples of upper and lower terciles based on EPU. Moneyness is employed as the instrument variable. The subsamples period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Table 2.6: Cross-sectional analyses: financial analyst coverage

	Low Analyst Coverage				High Analyst Coverage			
$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t}\times CFO_{i,t}\times Volume_{i,t}$	-0.06**	-2.13	-0.098***	-3.42	-0.082***	-2.78	-0.121***	-3.52
$DCFO_{i,t}\times Volume_{i,t}$	0.004	0.72	-0.003	-0.57	-0.015**	-2.4	-0.021***	-3.13
$CFO_{i,t}\times Volume_{i,t}$	0.074***	5.18	0.1***	5.97	0.032***	2.94	0.053***	4.03
$Volume_{i,t}$	-0.008***	-3.61	-0.014***	-5.11	-0.007***	-3.55	-0.016***	-7.24
$DCFO_{i,t}\times CFO_{i,t}$	0.461***	9.76	-0.399***	-3.47	0.737***	6.19	-0.609***	-2.76
$DCFO_{i,t}$	-0.017**	-2.36	-0.118***	-5.73	0.026	1.2	-0.211***	-5.43
$CFO_{i,t}$	-0.355***	-12.46	0.145	1.6	-0.43***	-9.4	0.134	1.49
Control Variables	NO		YES		NO		YES	
Industry and Year FX	YES		YES		YES		YES	
Observations	12718		12718		12696		12696	
Centered R2	0.0381		0.0861		0.0762		0.1708	
F test (Prob>F)	40.36 (0.0000)		41.20 (0.0000)		57.91 (0.0000)		54.54 (0.0000)	

This Table presents the regression results of estimating equation 2 by using 2SLS approach for two subsamples of upper and lower terciles based on financial analyst coverage. Moneyness is employed as the instrument variable.The subsamples period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Table 2.7: Investment sentiment and the association between options trading volume and conditional conservatism

	Low Sentiment Periods				High Sentiment Periods			
$ACC_{i,t}$	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
$DCFO_{i,t} \times CFO_{i,t} \times Volume_{i,t}$	-0.017	-0.78	-0.066**	-2.18	-0.076***	-3.58	-0.143***	-5.73
$DCFO_{i,t} \times Volume_{i,t}$	-0.003	-0.84	-0.01**	-2.04	-0.016***	-3.11	-0.024***	-4.03
$CFO_{i,t} \times Volume_{i,t}$	0.025***	2.63	0.055***	4.02	0.035***	3.82	0.072***	5.99
$Volume_{i,t}$	-0.002	-1.57	-0.012***	-5.89	-0.006***	-3.27	-0.015***	-6.2
$DCFO_{i,t} \times CFO_{i,t}$	0.387***	7.55	-0.364***	-2.74	0.632***	12.68	-0.515***	-4.25
$DCFO_{i,t}$	-0.013	-1.49	-0.095***	-3.79	0.004	0.36	-0.157***	-6.81
$CFO_{i,t}$	-0.31***	-10.16	0.181**	2.13	-0.411***	-14.73	0.173**	2.21
Control Variables	NO		YES		NO		YES	
Industry and Year FX	YES		YES		YES		YES	
Observations	11558		11558		12648		12648	
Centered R2	0.0396		0.1001		0.0569		0.1161	
F test (Prob>F)	40.00 (0.0000)		45.64 (0.0000)		85.18 (0.0000)		73.24 (0.0000)	

This Table presents the regression results of estimating equation 2 by using 2SLS approach for two subsamples of upper and lower terciles based on investor sentiment. Moneyness is employed as the instrument variable. The subsamples period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Table 2.8: The 2SLS regressions of options trading volume and conditional conservatism measured by using Basu's (1997) persistence of earnings changes model

Panel A: The first-stage IV regression estimates with moneyness as the instrument variable

	$Volume_{i,t}$		$D\Delta NI_{i,t}\times Volume_{i,t}$		$\Delta NI_{i,t}\times Volume_{i,t}$		$D\Delta NI_{i,t}\times\Delta NI_{i,t}\times Volume_{i,t}$	
$Money_{i,t}$	0.442*** (39.62)	0.325*** (33.48)	-0.002** (2.4)	-0.008*** (6.95)	0.002*** (2.62)	0.000 (0.03)	0.000 (-1.18)	0.000 (-1.05)
$D\Delta NI_{i,t}\times Money_{i,t}$	-0.014 (-1.37)	0.001 (0.09)	0.434*** (41.03)	0.347*** (35.81)	-0.007*** (-3.53)	-0.002 (-1.17)	-0.005*** (-2.69)	-0.002 (-1.12)
$\Delta NI_{i,t}\times Money_{i,t}$	-0.317*** (-5.65)	-0.247*** (-5.26)	0.007** (1.89)	0.021*** (4.18)	0.350*** (19.34)	0.286*** (18.42)	0.000 (0.5)	0.001** (2.18)
$D\Delta NI_{i,t}\times\Delta NI_{i,t}\times Money_{i,t}$	0.52*** (7.29)	0.393*** (6.38)	0.204*** (5.95)	0.157*** (5.01)	-0.032 (-1.09)	-0.021 (-0.78)	0.318*** (13.25)	0.264*** (12.04)
$D\Delta NI_{i,t}$	-0.102*** (-5.08)	0.382*** (5.72)	1.493*** (59.49)	-1.385*** (-20.27)	0.010*** (2.42)	0.092*** (7.71)	0.009*** (2.66)	0.056*** (5.79)
$\Delta NI_{i,t}$	0.069 (0.41)	2.558*** (5.48)	0.013 (0.4)	0.284*** (3.21)	1.618*** (32.51)	-0.911*** (-6.76)	0.003 (1.13	0.014** (2.01)
$D\Delta NI_{i,t}\times\Delta NI_{i,t}$	-0.126 (-0. 54)	-4.429*** (-6.95)	-0.105 (-0.98)	-1.577*** (-4.84)	0.012 (0.17)	0.318* (1.7)	1.624*** (28.12)	-0.607*** (-4.09)
Observations	32918	32918	32918	32918	32918	32918	32918	32918
Control variables	NO	Y	NO	Y	NO	Y	NO	Y
Industry and Year FX	Y	Y	Y	Y	Y	Y	Y	Y
F test (Prob>F)	713.31 (0.0000)	487.56 (0.0000)	632.62 (0.0000)	451.88 (0.0000)	668.85 (0.0000)	394.00 (0.0000)	602.27 (0.0000)	338.71 (0.0000)
Sanderson Windmeijer multivariate F test (Prob>F)	1775.84 (0.0000)	1330.49 (0.0000)	2308.80 (0.0000)	1736.08 (0.0000)	850.34 (0.0000)	713.01 (0.0000)	1109.21 (0.0000)	877.42 (0.0000)

Table 2.8: The 2SLS regressions of options trading volume and conditional conservatism measured by using Basu's (1997) persistence of earnings changes model

Panel B: The second-stage IV regression estimates with moneyness as the instrument variable

$\Delta NI_{i,t+1}$	Coefficient	t-statistic	Coefficient	t-statistic
$D\Delta NI_{i,t} \times \Delta NI_{i,t} \times Volume_{i,t}$	0.068***	3.9	0.106***	4.64
$D\Delta NI_{i,t} \times Volume_{i,t}$	-0.001	-0.66	-0.002	-1.4
$\Delta NI_{i,t} \times Volume_{i,t}$	-0.028**	-1.99	-0.034*	-1.74
$Volume_{i,t}$	0.002***	2.7	0.001	1.13
$D\Delta NI_{i,t} \times \Delta NI_{i,t}$	-0.142***	-2.94	0.317**	2.56
$D\Delta NI_{i,t}$	-0.003	-0.98	-0.022**	-2.23
$\Delta NI_{i,t}$	-0.08**	-2.2	-0.190**	-1.97
$D\Delta NI_{i,t} \times \Delta NI_{i,t} \times Size_{i,t}$			-0.088***	-3.54
$D\Delta NI_{i,t} \times Size_{i,t}$			0.003*	1.82
$\Delta NI_{i,t} \times Size_{i,t}$			0.010	0.5
$Size_{i,t}$			0.000	0.18
$D\Delta NI_{i,t} \times \Delta NI_{i,t} \times Lev_{i,t}$			-0.167***	-3.9
$D\Delta NI_{i,t} \times Lev_{i,t}$			0.002	0.57
$\Delta NI_{i,t} \times Lev_{i,t}$			0.079**	2.12
$Lev_{i,t}$			-0.006***	-3.06
$D\Delta NI_{i,t} \times \Delta NI_{i,t} \times MB_{i,t}$			-0.004	-0.58
$D\Delta NI_{i,t} \times MB_{i,t}$			-0.001	-1.36
$\Delta NI_{i,t} \times MB_{i,t}$			0.008	1.5
$MB_{i,t}$			0.002***	5.62
Industry and Year FX	YES		YES	
Observations	32918		32918	
Centered R2	0.0215		0.0424	
F test	29.74***		27.75***	
Kleibergen-Paap rk LM Chi-sq Test	446.51***		619.70***	
Kleibergen-Paap rk Wald F	9596.78***		6507.52***	
Cragg-Donald Wald F statistic	464.32		369.44	
Stock-Yogo weak ID F test critical values:				
5% maximal IV relative bias	16.85		16.85	
10% maximal IV size	24.58		24.58	
Anderson-Rubin Wald test F Test	5.90***		15.22***	
Anderson-Rubin Wald test Chi-sq Test	23.67***		61.10***	
Stock-Wright LM S statistic Chi-sq Test	20.52***		46.99***	
Hansen J statistic	0.0000		0.0000	

This Table presents the regression results of estimating equation 5 by using 2SLS approach. The sample period for this estimation is from 1997 to 2019. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by firm. See Appendix for variable definitions.

Chapter 3: The spillover effects of peer firm bankruptcy announcements and conditional accounting conservatism

Abstract: This paper investigates if and how a peer's bankruptcy affects financial reporting by other firms within the industry. Prior research documents that the bankruptcy filing of a peer firm has negative capital market effects on other firms within the industry (lower stock market value and higher cost of debt). We argue that firms within an industry experiencing peer bankruptcies may modify their financial reporting to mitigate such negative capital market effects. Using a large sample from 1980 to 2018, we find that firms exhibit more conditional conservatism in financial reporting following a peer firm bankruptcy filing. Our findings survive a battery of robustness tests including the exclusion of distressed industries, the 2000 dot-com crash period, and the 2008 financial crisis period as well as employing an alternative proxy for conditional conservatism. The results are insignificant for placebo bankruptcies one and two years before the actual bankruptcies. Further analysis shows that the spillover effects are more pronounced for firms in low concentrated industries, for those that undertake new equity or debt financing, and for ones with higher percentage of independent directors.

Keywords: Accounting conservatism, Bankruptcy, Spillover effects, Financial reporting

3.1 Introduction

In this study, we investigate how a salient event affecting a firm within an industry shapes the financial reporting strategy of other firms within the same industry. More specifically, we examine the intra-industry spillover effects of bankruptcy announcements on conditional accounting conservatism. Prior research documents that following a bankruptcy announcement by a peer firm, other firms within the same industry reduce capital expenditures (Garcia-Appendini, 2018) or increase their cash holdings (Le, 2012). Moreover, investors generally react negatively to the announcement of a peer firm bankruptcy, by reducing stock market prices (Lang & Stulz, 1992) and raising the cost of debt (Jorion & Zhang, 2007; Benmelech & Bergman, 2011; Hertzel & Officer, 2012) of other firms within the industry. Overall, prior studies show that bankruptcy announcements make outsiders wary of firms within the same industry, resulting in higher external financing costs. A natural question thus arises as to how firms use financial reporting to mitigate the negative impact of an industry peer's bankruptcy. Our focus on financial reporting is warranted as it plays an essential role in "instilling investor confidence" and enhancing market liquidity and efficiency (Levitt, 1998).

One potential answer to this question is that managers choose a financial reporting strategy that provides more verifiable accounting numbers, thereby reducing uncertainty and alleviating the information asymmetries between insiders and outsiders. In this regard, previous studies suggest that conditional accounting conservatism is an effective reporting strategy for reducing information asymmetry and reassuring outsiders (e.g., Watts, 2003a & 2003b; LaFond & Watts, 2008; Francis, Hasan, & Wu, 2013; Garcia Lara, Garcia Osma & Penalva, 2014; Kim & Zhang, 2016). Furthermore, there is evidence that conditional conservatism increases debt contracting efficiency (Ahmed, Billings, Morton, & Stanford-Harris, 2002; Ball, Robin, & Sadka, 2008;

Beatty, Liao, & Yu, 2008; Ruch & Taylor, 2015; Watts, 2003a). Hence, managers may consider raising the level of conditional conservatism in their financial reporting to counter the higher cost of debt following a peer firm's bankruptcy.

As argued by Gigler, Kanodia, Sapra, and Venugopalan, (2009) and Guay and Verrecchia (2006), conditional conservatism may lead to informational inefficiency by sending "false alarms". Hence, an alternative answer is that managers may recognize gains more quickly to avoid sending "false alarms" in times of uncertainty following a peer firm bankruptcy announcement. Managers may also manipulate earnings upward to portray a better picture of a firm's underlying economic health. Thus, it is an empirical question as to whether firms exhibit a higher or lower degree of conditional conservatism in financial reporting following the bankruptcy of a firm in the same industry.

To examine how a peer firm's bankruptcy filing shapes the financial reporting strategy of other firms within an industry, we employ Basu's (1997) model of conditional conservatism, which is widely used in the literature. Using the Lopucki Bankruptcy Research Database and Audit Analytics, we identify 2,077 corporate bankruptcies in non-financial industries that were filed between 1980 and 2018. We find that firms generally exhibit a higher degree of conditional conservatism following a peer firm's bankruptcy announcement. To rule out the possibility that industry conditions lead to both the peer firm bankruptcy filing and higher conservatism in reporting among non-bankrupt firms, we replicate our main analysis in subsamples of non-distressed industries, with similar results. Bankruptcy filings are concentrated during the 2000 dot-com crash and the 2008 financial crisis. We find that results continue to hold after excluding the two crisis periods (i.e., 2000–2004 and 2007–2010). We perform two placebo tests (falsification tests) by examining the intra-industry spillover effects of placebo bankruptcies one and two years

before the actual event. We fail to find any evidence on the spillover effects of placebo bankruptcies. We also confirm the association between bankruptcy spillover effects of peer firms and conditional conservatism by employing Givoly and Hayn's (2000) model of conditional conservatism.

To further explore how bankruptcy spillover effects of peer firms lead to more conservative reporting, we conduct a series of cross-sectional tests. First, we find that our results are weaker for the subsample of highly concentrated industry years. This result is consistent with previous studies indicating bankruptcy filing has no or little contiguous effects on other firms in highly concentrated industries (e.g., Lang, & Stulz, 1992; Iqbal, 2001; Hertzel, & Officer, 2012). Second, we observe that the effects of a peer firm's bankruptcy announcement are more salient among firms that raise new equity or debt finance. Third, we document that the spillover effects of a peer firm bankruptcy filing are more pronounced among firms with higher percentage of independent directors.

Our study makes two significant contributions to the existing literature. First, this paper contributes to the literature on the spillover effects of bankruptcy announcements. Prior studies document that peer firm bankruptcy filing influences firm value (e.g., Lang, & Stulz 1992), cost of debt (e.g., Benmelech, & Bergman 2011; Hertzel, & Officer 2012) investments (Garcia-Appendini, 2018), and cash holding policies (Le, 2012). However, the literature remains silent about the effects of such spillovers on firms' financial reporting strategies, an important set of corporate policies. This study extends this line of the literature by investigating how managers use financial reporting strategies to mitigate stakeholders' negative sentiments associated with bankruptcy events.

Second, our work enhances our understanding as to why firms exercise conditional conservatism in financial reporting. The determinants of conditional conservatism have been

widely researched over the past two decades. Prior studies show that conditional conservatism is mainly influenced by a firm's debtholders (e.g., Ahmed et al., 2002; Zhang, 2008; Beatty et al., 2008), governance (Ahmed, & Duellman, 2007; Garcia Lara, Garcia Osma, & Penalva, 2009b; Ramalingegowda, & Yu, 2010), and legal environment (e.g., Bushman, & Piotroski, 2006; Jayaraman, 2011). This study adds to this existing literature by identifying peer firm bankruptcy announcements as another determinant of conditional conservatism. A common feature of prior studies is that researchers assume that the demand from financial information users for conservatism is fixed. However, this study shows that news coming from peer firms affects the demand for conditional conservatism which may thus fluctuate over time.

The article proceeds as follows. In section 2, we develop our empirical research question, and in section 3, we discuss the empirical model. In section 4, we introduce our sample and report the descriptive analysis and main study findings. In section 5, we report additional analyses results. We conclude in section 6.

3.2 Background and research question development

Lang and Stulz (1992) show that a bankruptcy announcement within an industry reduces the stock market value of a portfolio of competitors by 1%. They state that one potential explanation could be that the bankruptcy news raises outsiders' perception of the risk of same industry firms even when they are economically healthy. This view is consistent with research showing that after a firm-specific event, investors update their beliefs regarding other firms' prospects (Giesecke, 2004; Collin-Dufresne, Goldstein, & Helwege, 2002). In his analytical study, Giesecke (2004) shows that investors' lack of complete information is a major issue in the spillover effects of a salient event. His results also indicate that greater information transparency reduces the possibility

of spillover effects due to incomplete information. Therefore, following a peer firm bankruptcy announcement, we can expect managers to choose a financial reporting strategy that increases transparency and reduces information asymmetry.

In this regard, there is evidence that conditional accounting conservatism alleviates information asymmetry (Garcia Lara et al., 2014; Ruch, & Taylor, 2015). More formally, conditional accounting conservatism restricts managers' ability to overstate accounting numbers and hide bad news and thus potentially reduces information asymmetry (Watts 2003a, 2003b; Kim, & Zhang 2016; Garcia Lara et al., 2020). Consistent with this perspective, Garcia Lara et al. (2014) document that conditional accounting conservatism reduces information asymmetries. Furthermore, LaFond and Watts (2008) observe that firms report more conservative earnings following increases in information asymmetries. They theorize that conditional accounting conservatism is a strategy to mitigate value reduction due to the information asymmetries between managers and investors. They further argue that investors appreciate the verifiability of accounting information. As such, it is reasonable to expect that firms use accounting conditional conservatism to reduce information asymmetry and mitigate the negative impact of a peer firm's bankruptcy on their value. Investors may also demand conditional accounting conservatism to have verifiable information that reassures them about the firm's current operations.

Several studies document the spillover effect of bankruptcy on the cost of financing. For instance, Benmelech and Bergman (2011) find that bankruptcy filings materially affect the cost of debt financing of same-industry firms by reducing their collateral value. Hertzel and Officer (2012) investigate how the bankruptcy of rivals influences the terms of new and renegotiated bank loans. They find increases in spreads on new and renegotiated corporate loans within two years after bankruptcy filings by industry rivals. Since conditional accounting conservatism reduces

information asymmetries between firms and debtholders, it may represent an efficient mechanism for debt contracting (Ahmed et al., 2002; Watts, 2003a; Ruch, & Taylor 2015; Liu, & Magnan 2016). Given that the bankruptcy of a firm leads to tighter credit policies by debtholders of competing firms (e.g., Hertzel, & Officer 2012), it is reasonable to expect that firms will seek higher levels of conditional conservatism to reduce information asymmetries between managers and debtholders, and thus, lower their cost of debt. Since the news of bankruptcy makes debtholders wary of other firms within the same industry, they may also ask for more conditional conservatism from firms that are engaged in new debt negotiations (or in renegotiations of current debt).

Nevertheless, there are also reasons to expect that a firm's bankruptcy filing may not lead to an increase in conditional conservatism in other firms. Guay and Verrecchia (2006) criticize previous studies for investigating just the obvious benefits of timely loss recognition and ask the relevant question of what the costs and benefits of deferring gain recognition are. They emphasize that deferring gain recognition biases financial information and thus creates "informational inefficiencies." Although numerous studies provide evidence that conditional accounting conservatism results in efficient debt contracting and debtholders demand conditional conservatism, Gigler et al. (2009) analytically show that conservatism could result in inefficient debt contracting by increasing the probability of sending "false alarms." They also argue that reported losses are less informative than reported gains under a conditional conservative system. Therefore, we can expect that, following a bankruptcy filing and the subsequent increase in financing costs, non-filing firms will be less conservative to avoid sending false alarms. Such an action could potentially increase debt contracting efficiency. The other possibility is that managers might more quickly recognize gains than losses to boost earnings and portray a better picture of

the firm's current performance. Some studies show that firms engage in upward earnings management to sustain or improve their image (e.g., Bowen, Dutta, & Zhu, 2018; Beneish, Press, & Vargus, 2012; Rosner, 2003; Garcia Lara, Garcia Osma, & Neophytou, 2009a; Lin, Officer, & Zhan 2014; Zhang, Jiang, Magnan, & Su, 2021). Given these contrasting theoretical perspectives in the literature, how the news of a firm's bankruptcy filing influences the financial reporting of other firms in the same industry is an open empirical question.

3.3 Empirical model

3.3.1 Empirical model and variables

Basu's (1997) model of accounting conservatism has been widely used to study the determinants of conditional accounting conservatism (e.g., Ahmed, & Duellman 2013; Ball et al. 2008; Basu, & Liang 2019; Ettredge, Huang, & Zhang, 2012; LaFond, & Roychowdhury, 2008; Zhang, 2008). In this study, we employ Basu's (1997) model to examine the influence of bankruptcy spillover on same-industry firms. The intuition behind Basu's (1997) model of conservatism is that stock returns incorporate all economic news; therefore, stock returns can be used to proxy for good or bad economic news. Under conditional conservatism, economic bad news (losses) is recognized in a timelier fashion than economic good news (gains). Thus, it is expected that the association between reported earnings and bad economic news (measured by negative stock returns) will be higher than the association between reported earnings and good economic news. Basu's (1997) model is as follows:

$$Earnings_{it} = \beta_0 + \beta_1 Return_{it} + \beta_2 D_{it} + \beta_3 Return_{it} \times D_{it} + \varepsilon_{it} \quad (1)$$

where $Earnings_{it}$, the dependent variable, is annual income before extraordinary items (IB) of firm i in year t, scaled by the market value of equity (CSHO×PRCC_F) at the beginning of the fiscal year. $Return_{it}$ is the annual buy and hold stock return inclusive of dividends ending three months after fiscal year-end. D_{it} is an indicator variable equal to 1 if $Return_{it}$ is negative and 0 otherwise. The coefficient of interaction between $Return_{it}$ and D_{it} , $\beta_{3,}$ measures the level of conditional conservatism, and it is expected to be positive and significant. Higher values of $\beta_{3,}$ indicate a greater degree of conservatism.

To examine bankruptcy spillover, we extend Basu's (1997) model by adding control variables and *Spillover* which is an indicator variable that takes the value of one for a firm if there is a bankruptcy in the 4 digit industry in year t as follows:

$$Earnings_{it} = \beta_0 + \beta_1 Return_{it} + \beta_2 D_{it} + \beta_3 Return_{it} \times D_{it} + \beta_4 Spillover + \beta_5 Return_{it} \times Spillover + \beta_6 D_{it} \times Spillover + \beta_7 Return_{it} \times D_{it} \times Spillover + \beta_8 Size_{it} + \beta_9 Return_{it} \times Size_{it} + \beta_{10} D_{it} \times Size_{it} + \beta_{11} Return_{it} \times D_{it} \times Size_{it} + \beta_{12} Leverage_{it} + \beta_{13} Return_{it} \times Leverage_{it} + \beta_{14} D_{it} \times Leverage_{it} + \beta_{15} Return_{it} \times D_{it} \times Leverage_{it} + \beta_{16} MB_{it} + \beta_{17} Return_{it} \times MB_{it} + \beta_{18} D_{it} \times MB_{it} + \beta_{19} Return_{it} \times D_{it} \times MB_{it} + \varepsilon_{it} \quad (2)$$

Our coefficient of interest is β_7, the coefficient on the interaction between *Spillover* and conservatism metrics ($Return_{it} \times D_{it}$). If firms use more accounting conservatism following the bankruptcy of a same-industry firm, β_7 will be positive and significant. Following prior studies, we control for three main determinants of conditional accounting conservatism, i.e., firm size,

leverage, and the market to book (MB) ratio. $Size_{it}$ is the natural log of the market value of equity (CSHO×PRCC_F). Lobo and Zhou (2006) find that larger firms use more discretionary accruals and argue that operation complexity might facilitate earnings overstatement among large firms by providing more opportunities for using accruals. LaFond and Watts (2008) contend that large firms reduce the information asymmetry between firms and outsiders by disclosing more information to the public, and thereby reduce the demand for conditional accounting conservatism. Consistently, LaFond and Watts (2008) and other studies find a negative relationship between size and conditional accounting conservatism. We expect that β_{11}, the coefficient on $Return_{it} \times D_{it} \times Size_{it}$ will be negative and significant. $Leverage_{it}$ is the value of total debt (DLTT+ DLC) divided by the market value of equity (CSHO×PRCC_F). A higher level of leverage indicates greater demand from lenders for conditional accounting conservatism. This implies a positive relationship between leverage and the use of conditional accounting conservatism (e.g., Ball et al., 2013; Khan, & Watts 2009; Ramalingegowda, & Yu 2012; LaFond, & Watts 2008). Therefore, we expect β_{12} to be positive and significant. MB_{it} is the value of the MB ratio (CSHO×PRCC_F/ CEQ) at the beginning of the year. Roychowdhury and Watts (2007) find that the relationship between conditional accounting conservatism and the MB ratio is very complex and depends on the horizon for estimating conservatism. They find that when Basu's (1997) model is estimated over the short term (less than two years), both the ending MB ratio and degree of conservatism are influenced by the beginning value of the MB ratio. Consistent with prior studies (e.g., Ahmed, & Duellman, 2013; Roychowdhury, & Watts, 2007), it is expected that the coefficient on the interaction between the beginning value of the MB ratio and conservatism metrics ($Return_{it} \times D_{it}$) will be negative. We control for industry-specific effects by including industry-fixed effects. We also include year-fixed effects to account for time-varying unobserved determinants of conditional

conservatism in financial reporting. Standard errors are adjusted for heteroscedasticity and clustered by industry.

3.3.2 Sample

The data for this study were obtained from several different sources. The primary data are from Compustat's Annual North America database between 1980 and 2018. Data on buy and hold stock returns were obtained from CRSP. We employed two databases, the Lopucki Bankruptcy Research Database and Audit Analytics, to identify bankruptcy filings. We found 2,077 bankruptcy filings of non-financial firms from 1980 to 2018. Following previous studies (e.g., Lang, & Stulz 1992), we examine the spillover effect of bankruptcies on the same 4-digit Standard Industrial Classification (SIC) industry firms. We found 1,395 unique industry (4-digit SIC) years in which at least one firm filed for bankruptcy.

This study is entirely based on U.S. firms, so we exclude non-U.S. firm years. We exclude observations related to firms that are not listed on NYSE, AMEX, and NASDAQ. We remove firm-year observations related to financial industries (SIC codes 6000–6999) because they are subject to different regulations, and thus might behave differently in response to bankruptcy announcements. We also drop all observations related to the bankrupt firms. We exclude firm years with missing data items that are required to calculate variables in equation (2). To mitigate the influence of extreme observations, all of the continuous regression variables are truncated at the upper and lower 1 percentile. After truncating data, we end up with a final sample of 88,384 firm-year observations. We obtained the information for institutional ownership from Thomson Institutional Holdings, which contains institutional quarterly shareholding data from 13-F filings with the SEC. Data on boards of directors is generated from Boardex.

3.4 Empirical results

3.4.1 Descriptive statistics

Panel A of Table 1 displays the descriptive statistics for the variables employed to estimate equation (2). The mean of *Return* (annual buy and hold returns) is 0.1318, which is similar to past studies (e.g., 0.121 reported in Garcia Lara et al. (2009b) and 0.163 documented in LaFond and Roychowdhury (2008)). The mean of D_{it} is 0.4412, suggesting that 44.12% of the observations have negative returns. The average (median) of *Earnings* is 0.0255 (0.0502). The average of *Spillover* is 0.2186, indicating that 21.86% of observations are considered under the influence of a spillover of a same-industry bankruptcy announcement. The average (median) value of *Size* is 5.7291 (5.6767), and the mean (median) value of *Leverage* and *MB* (market to book ratio) are 0.4031 (0.1764) and 2.8118 (1.9822), respectively.

Table 1 about here

Panel B of Table 1 presents the Pearson correlations among the variables in equation (2). All correlations are significant (P< 0.01). Panel C of Table 1 presents the time series of bankruptcy filings. Bankruptcies are more frequent in economic crisis periods (i.e., the dot-com crash period and the financial crisis of 2007–2009). Panel D of Table 1 summarizes the bankruptcy filings distribution across industry classifications. To conserve space, bankruptcy filings are classified using the 12 Fama and French (1997) industry groups. We exclude financial industries.

3.4.2 Main findings

Table 2 presents the results of estimating equation (2). β_7 , the coefficient on $Return_{it} \times D_{it} \times Spillover$, is positive and significant (0.0656; p < 0.01 & 0.0704; p < 0.01), implying that following a peer firm bankruptcy, other firms employ more conditional accounting conservatism.

The results are also consistent with prior studies on conditional accounting conservatism (e.g., Ahmed, & Duellman 2013). The coefficient on $Return_i \times D_{it} \times Size$ is negative and significant (-0.0258; p < 0.01), suggesting a negative association between firm size and the level of conservatism. β_{12}, the coefficient on $Return_{it} \times D_{it} \times Leverage$ is positive and significant (0.0281; p < 0.01), indicating that debtholders demand accounting conservatism (Ahmed et al. 2002). Consistent with the findings of Roychowdhury, & Watts (2007), we find a negative and significant coefficient (-0.0064; p < 0.01) on the three-way interaction term, $Return_{it} \times D_{it} \times MB$, implying a negative association between the beginning value of the MB ratio and the level of accounting conservatism. This suggests that firms with greater growth potential and/or less recorded assets on their books exhibit less conservative financial reporting.

Table 2 about here

3.5 Additional Analyses

3.5.1 Distressed industries

To the best of our knowledge, no prior study provides evidence that firms in distress exhibit more conditional conservatism in financial reporting. On the contrary, the literature on financial

reporting suggests that firms in distress manage earnings upward to portray a better picture of the firm's performance (e.g., Bowen et al., 2018; Beneish et al., 2012; Rosner, 2003; Garcia Lara et al., 2009; Lin et al., 2014; Zhang et al., 2019).

However, to mitigate any concern that both the bankruptcy filing and increase in the degree of conditional conservatism are outcomes of economic distress in the industry, we examine the spillover effects of bankruptcies that occurred while the industry performance was sound, and we drop industry years associated with bankruptcy in distress industries. Consistent with Gopalan and Xie (2011) and Opler and Titman (1994), we define an industry as distressed when the median sales growth in the industry is negative, and the median stock return is less than -30%. A bankruptcy filing could be the result of distress within the industry. Hence, we create subsamples by dropping distressed industries. Table 3 presents the results using subsamples of industries with sound performance. We find that the coefficients on $Return_{it} \times D_{it} \times Spillover$ are positive and statistically significant (0.0656; $p < 0.01$ & 0.0704; $p < 0.01$). The reported results in Table 3 suggest that the distressed industry periods do not drive the main results of this study.

Table 3 about here

3.5.2 Financial crisis periods

In this section, we examine whether our results are robust to the exclusion of financial crisis periods. We exclude all firm years between 2000 and 2004 to examine the exclusion of the dot-com crash period from the sample. We also remove all observations between 2007 and 2010 to explore whether the results continue to hold after the exclusion of the recent financial crisis.

Table 4 reports results for three samples created by removing the dot-com crash period and the

recent financial crisis period. The coefficients on $Return_{it} \times D_{it} \times Spillover$ are positive and significant for all subsamples (P <0.01), suggesting the results of this study are robust to the exclusion of the crisis periods.

Table 4 about here

3.5.3 Placebo bankruptcy events

To rule out the alternative explanation that industry characteristics lead to greater conditional conservatism in industries that experience bankruptcies, we conduct a placebo test. We set placebo bankruptcy events one and two years before the actual bankruptcy. Consequently, we examine the level of conditional conservatism one year and two years before the real bankruptcy events in the same industries that actual bankruptcies occurred.

Table 5 presents the results for replicating the models in Table 2 using placebo bankruptcy events two and three years before the actual bankruptcy filings. The reported tests in Table 5 fail to produce the results obtained when using the actual bankruptcy events. The coefficient on the three-way interaction term, $Return_{it} \times D_{it} \times Spillover$ is insignificant (-0.0208; p=0.111) for placebo bankruptcy events in one year before actual bankruptcy and it is negative and significant (-0.0432; p<0.01) for placebo events in two years before real bankruptcies. These results imply that it is unlikely that placebo bankruptcy announcements induce greater conditional conservatism. Collectively, the reported results in Table 5 provide further assurance that bankruptcy filings lead firms to use more conditional accounting conservatism.

Table 5 about here

3.5.4 Alternative proxy for conditional conservatism

To corroborate our findings, we employ the accruals-based model of Givoly and Hayn

(2000) as an alternative proxy for conditional conservatism. This proxy is based on the notion that reporting bad news (losses) more quickly than good news (gains) results in negative accruals. To re-examine the spillover effects of peer firm bankruptcy on conditional conservatism, we employ the following model.

$$CON\_ACC_{i,t} = \beta_0 + \beta_1 Spillover_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 MB_{it} + \beta_5 Sales\_Growth_{it} + \beta_6 RDADV_{it} + \beta_7 CFO_{i,t} + \varepsilon \quad (3)$$

Where $CON\_ACC_{i,t}$ is income before extraordinary items (NI) less cash flows from operations (OANCF) plus depreciation expense (DP) for firm i in year t scaled by assets at the beginning-of-year (AT), averaged over three years (t, t+1, & t+2)[17]. Following previous studies (e.g., Goh, & Li 2011; Ge et al., 2019), we also control for size ($Size_{it}$), leverage ($Leverage_{it}$), market to book value (MB_{it}), sales growth ($Sales\_Growth_{it}$), research and development expense and advertising expense ($RDADV_{it}$), and operating cash flows ($CFO_{i,t}$).

Table 6 presents results for re-estimation of the association between the spillover effects of peer firm bankruptcy and conditional conservatism by using the accruals-based model of Givoly and Hayn (2000). The coefficient of interest, $Spillover_{it}$, is negative and significant (-0.009, P<0.01), suggesting that that following the peer firm bankruptcy announcement, firms exhibit more conditional conservatism.

Table 6 about here

3.5.5 Industry concentration

In this section, we examine whether bankruptcy filings in highly concentrated industries

[17]Following prior studies (e.g., Richardson, Sloan, Soliman, &Tuna, 2005; Goh & Li, 2011), we average this measure over three years to mitigate the effects of temporary large accruals are mitigated. We obtain qualitatively similar results when we do not average this measure of conditional conservatism (untabulated).

lead to an increase in the degree of conditional accounting conservatism. Overall, the literature indicates that, on average, firms suffer adverse wealth effects and face higher costs of external financing surrounding bankruptcy announcements of same-industry firms. However, some studies find no spillover effects or even positive spillover effects (e.g., higher stock prices and return on investments) for firms that are in highly concentrated industries (e.g., Lang,& Stulz 1992; Iqbal, 2001; Hertzel, & Officer, 2012; Kolay, Lemmon, & Tashjian, 2016; Garcia-Appendini, 2018). Lang and Stulz (1992) hypothesize that the removal of a competitor firm in highly concentrated industries creates an opportunity for other firms to take over the market share lost by the bankrupt firm and thus boost their sales. Kolay et al. (2016), who examine the externalities of bankruptcy filings in supply chains, argue that in a concentrated market, suppliers and customers have few alternative options after a firm's bankruptcy, and thus rivals enjoy greater bargaining power over suppliers and customers when negotiating prices. The other reason a bankruptcy announcement may not influence rivals is that firms tend to be large, with a particularly high level of sales in highly concentrated industries. As such, we can expect large firms to be more stable and more resilient to events such as a bankruptcy announcement in the industry. Prior studies consistently find empirical evidence that after a bankruptcy filing in a highly concentrated industry, rivals experience higher stock prices (Lang, & Stulz, 1992), increases in ROA (Iqbal, 2001), no change in loan spreads (Hertzel, & Officer, 2012), and no change in the level of investment (Garcia-Appendini, 2018). In line with previous studies, we hypothesize that the spillover effects of bankruptcy announcements to be weaker in highly concentrated industries.

To measure the degree of industry concentration, we use the Herfindahl-Hirschman Index (HHI), which is the most widely used proxy for industry concentration (or competition) in the literature. Following prior studies (e.g., Flammer 2015), the HHI index is calculated as the sum of

the squared market shares of firms in each industry (4-digit SIC codes). It is mathematically defined as follows:

$$HHI_{jk} = \sum_{i=1}^{I} S_{ijk}^2 \quad (4)$$

where S_{ijk} is the market share of firm i in industry j and year k. A high value of the HHI index indicates that the market is shared among few firms, and thus there is weak competition and high industry concentration in the industry.

To investigate how industry concentration influences the intra-industry spillover effects of bankruptcy, we re-run equation (2) in subsamples of high and low concentration industries. More specifically, we split the sample at the median of HHI, yielding high and low industry concentration samples. Table 7 presents the results for the high and low industry concentration subsamples. Results indicate that bankruptcy announcements induce conditional conservatism in both subsamples of firms that are above and below the median. However, further analysis reveals that the coefficients on the three-way interaction term $Return_{it} \times D_{it} \times Spillover$ are significantly different across the two subsamples ($p < 0.01$). This is consistent with previous research, and supports the argument that firms in highly concentrated industries are less likely to be affected by the bankruptcy announcements of competitors.

Table 7 about here

3.5.6 New financing

To explore to what extent the increase in timely loss recognition could be attributed to the capital providers' demand for conditional accounting conservatism, we perform subsample tests

by new equity issuance and new debt issuance, respectively. More specifically, we create subsample of firm years with and without new issues of new debt as well as subsamples of firms with and without new issues of equity. The regression results for this section are presented in Table 8. The coefficient on $Return_{it} \times D_{it} \times Spillover$ is positive and significant across all subsamples. We further find that the coefficients are significantly (P<0.01) different between subsample of firm years with and without new issues of new debt as well as between subsamples of firms with and without new issues of equity. These results suggest that spillover effects of a peer firm bankruptcy are more pronounced among the firms that undertake new equity or debt financing.

Table 8 about here

3.5.7 The spillover effects of a peer firm bankruptcy filing a year after bankruptcy

It is also interesting to explore whether firms exhibit more conservatism in the year following a competitors' bankruptcy announcement. To explore the response of non-bankrupt firms a year after a bankruptcy filing, we re-estimate equation (2) by replacing Spillover, the dummy variable for the contemporaneous spillover effects, with $Spill\_after$, a dummy variable taking value one if at least one bankruptcy occurred in the industry (SIC 4-digit) in year t-1. The reported results in Table 9 show the coefficient on $Return_{it} \times D_{it} \times Spill\_after$ is positive and significant, suggesting that firms use more conditional conservatism in the year following a peer firm's bankruptcy announcement.

Table 9 about here

3.5.8 Corporate governance

Overall, the literature suggests that strong corporate governance mechanisms are associated with higher conditional conservatism in financial reporting (e.g., Ahmed, & Duellman, 2007; Garcia Lara et al., 2009b). Corporate governance mechanisms demand conditional accounting conservatism because verifiable information allows corporate directors to more effectively monitor and advise managers and thus reduce agency costs (Ahmed, & Duellman, 2007). Conditional accounting conservatism improves the efficiency of the compensation mechanism by providing more verifiable information (Watts, 2003a).

In this section, we examine how corporate governance mechanisms influence the spillover effects of bankruptcy filings on same-industry conservative reporting. We focus on institutional ownership and the board of directors' characteristics as two main corporate governance mechanisms. Ramalingegowda and Yu (2012) contend that institutional shareholders have a better understanding of accounting numbers than individual investors, and are aware of the benefits of conditional accounting conservatism for monitoring managers. Therefore, they demand a higher degree of conservatism in financial reporting to facilitate the monitoring of managers. Consistent with their hypothesis, they find a positive association between institutional ownership and conditional accounting conservatism. If news of a peer firm bankruptcy makes institutional shareholders wary of the firm, they might demand more conditional conservatism to help them monitor the CEO. Ahmed and Duellman (2007) examine the association between the characteristics of the board of directors and conditional accounting conservatism. They find that the percentage of outside (inside) directors is positively (negatively) related to the degree of conditional conservatism in financial reporting.

To examine the potential impact of governance mechanisms on the association between

bankruptcy announcements and conditional accounting conservatism, we create subsamples based on the level of institutional ownership, and percentage of board independence. Table 10 presents the results for the high and low institutional ownership subsamples, which are above and below the median, respectively. The coefficient on the three-way interaction term, $Return_{it} \times D_{it} \times Spillover$, is positive and significant for both subsample of firms with both high (0.0893; P<0.01) and low institutional ownership (0.0627; P<0.01) in the same industry. In further analysis, we fail to find any significant difference between the coefficients.

Table 10 about here

Table 11 presents the results for subsamples created based on the percentage of board independence. The coefficients on $Return_{it} \times D_{it} \times Spillover$ for the subsample of boards with higher percentage of independent directors is significant and positive (0.0472; P<0.05) while it is not significant for firms with a board that has a lower percentage on independent directors (0.0219; P=0.336). As such, the percentage of independent directors strengthens the spillover effects of a competitor's bankruptcy announcements.

Table 11 about here

3.6 Conclusion

This study examines how a peer firm's bankruptcy announcement affects accounting choices among other firms within that industry. It is well documented in the corporate finance literature that a bankruptcy filing negatively affects the stock prices of other firms in the same industry and also increases their cost of debt regardless of their economic health. The question is how firms report accounting numbers to mitigate the negative sentiment created by news of peer

firm bankruptcy filings. Using a large sample of U.S. firms over the 1980–2018 period, we find that firms exhibit more conditional conservatism in financial reporting. The results are robust to the exclusion of distressed industries, the dot-com crisis period, and the global crisis of 2008. Placebo tests do not show a higher degree of conditional conservatism before the actual bankruptcies, assuring the higher level of conservatism is induced by the peer firm bankruptcy filing. We corroborate our findings by using Givoly and Hayn's (2000) model of conditional conservatism. Further analysis reveals that the spillover effects are stronger for firms in low concentrated industries, for firms that undertake new equity or debt financing, and for firms with a higher percentage of independent directors.

Overall, our study demonstrates how a salient event for a peer firm influences firms' financial reporting strategy. More specifically, our work shows that the degree of conditional conservatism may fluctuate over time and change in response to news. This study has implications for standard setters and regulators by showing how there is a demand for conditional accounting conservatism, especially in times of uncertainty. This paper also extends the scope of the literature on the spillover effects of bankruptcy by showing that peer firm bankruptcy announcement has spillover effects on firms' financial reporting.

One caveat to our findings is that our identification method of distressed industries might not identify all distressed industries. We do not also examine the potential impact of the likelihood of the firm's emergence from bankruptcy on other firms' financial reporting strategies. Future research may provide evidence on how such likelihood affects the spillover effects of peer firm bankruptcy on financial reporting. Our paper highlights how the news of a firm's bankruptcy filing influences the financial reporting of other firms in the same industry. Future studies could examine the potential impact of other news coming from a peer firm such as emergence from bankruptcy,

product launch, product recall, and environmental crisis on financial reporting.

References, tables, and appendix

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Table 3.1 Descriptive statistics

Panel A: Summary statistics for key variables

Variable	Nobs	Mean	Median	Std Dev	P 25	P 75
Earnings	88,384	0.0255	0.0502	0.1248	0.0038	0.084
Return	88,384	0.1318	0.0547	0.5356	-0.2031	0.3382
D	88,384	0.4412	0	0.4965	0	1
Spillover	88,384	0.2186	0	0.4133	0	0
Size	88,384	5.7291	5.6767	1.995	4.2199	7.1437
Leverage	88,384	0.4031	0.1764	0.6148	0.0194	0.5181
MB	88,384	2.8118	1.9822	2.8827	1.2522	3.3365

Panel B: Pearson correlation coefficients

	Earnings	*Return*	*D*	*Spillover*	*size*	*leverage*	*MB*
Earnings	1						
Return	0.1126	1					
D	-0.1717	-0.6738	1				
Spillover	-0.1836	0.0026	0.0278	1			
Size	0.1535	0.0385	-0.1181	0.077	1		
Leverage	-0.0466	-0.0759	0.057	-0.0609	-0.1196	1	
MB	-0.065	-0.0614	0.0702	0.0864	0.2097	-0.2246	1

Panel C: The time series of bankruptcy filings

Year	Number of filings	Year	Number of filings	Year	Number of filings
1980	3	1993	19	2006	60
1981	5	1994	13	2007	54
1982	12	1995	16	2008	105
1983	4	1996	18	2009	168
1984	6	1997	16	2010	64
1985	6	1998	23	2011	62
1986	10	1999	50	2012	48
1987	7	2000	136	2013	47
1988	10	2001	251	2014	35
1989	9	2002	209	2015	52
1990	26	2003	146	2016	71
1991	33	2004	99	2017	48
1992	31	2005	73	2018	32

Panel D: Bankruptcy Filings by Industry

Industry	Number of bankruptcy filings
Consumer Nondurables	127
Consumer Durables	81
Manufacturing	257
Energy	167
Chemicals	57
Business Equipment	312
Telecom	138
Utilities	26
Shops, and Some Services	338
Health	182
Other	392
Total	2077

Table 1 displays summary statistics for variables used in the main analysis. All the Pearson correlation coefficients are significant at the 1% level. Panel D presents the distribution of bankruptcy filings by the Fama French twelve industry groups. The sample does not contain financial firms.

Table 3.2: The intra-industry spillover effects of bankruptcy announcement and accounting conservatism

Dependent variable $Earnings_{it}$		Coef	t-stat	Coef	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	β_7	0.0656***	5.51	0.0704***	7.16
$Return_{it} \times Spillover_{it}$	β_6	-0.0269***	-4.79	-0.0275***	-4.78
$D_{it} \times Spillover_{it}$	β_5	0.0039	0.88	0.0005	0.1
$Spillover_{it}$	β_4	-0.0006	-0.22	0.0039	1.26
$Return_{it} \times D_{it}$	β_3	0.1258***	21.35	0.2339***	16.39
D_{it}	β_2	-0.0064***	-4.66	-0.0091**	-2.13
$Return_{it}$	β_1	0.0003	0.11	-0.0051	-0.79
$Return_{it} \times D_{it} \times Size_{it}$	β_{11}			-0.0258***	-10.26
$Return_{it} \times Size_{it}$	β_{10}			0.0025***	2.69
$D_{it} \times Size_{it}$	β_9			0.0007	0.98
$Size_{it}$	β_8			0.0091***	8.18
$Return_{it} \times D_{it} \times Leverage_{it}$	β_{15}			0.0281***	3.08
$Return_{it} \times Leverage_{it}$	β_{14}			-0.002	-0.46
$D_{it} \times Leverage_{it}$	β_{13}			-0.002	-0.5
$Leverage_{it}$	β_{12}			-0.0216***	-6.78
$Return_{it} \times D_{it} \times MB_{it}$	β_{19}			-0.0064***	-5.12
$Return_{it} \times MB_{it}$	β_{18}			-0.0012***	-2.93
$D_{it} \times MB_{it}$	β_{17}			0	-0.07
MB_{it}	β_{16}			-0.0008**	-2.09
Nobs		88,384		88,384	
R^2_{Adj}		0.2140		0.2733	

This table presents the regression results of estimating equation 2. The sample period for this estimation is from 1980 to 2018. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.3: The spillover effect of bankruptcy in industries with sound performance

	Median Sales growth>0		Median stock return>-0.3	
Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	0.0633***	7.17	0.0621***	6.24
$Return_{it} \times Spillover_{it}$	-0.0297***	-5	-0.0269***	-5.02
$D_{it} \times Spillover_{it}$	-0.0054	-1.41	0	-0.01
$Spillover_{it}$	0.0085***	3.33	0.0041	1.37
$Return_{it} \times D_{it}$	0.2164***	16.08	0.2343***	14.3
D_{it}	-0.0121***	-3.16	-0.0092**	-2.19
$Return_{it}$	-0.0014	-0.23	-0.0044	-0.7
$Return_{it} \times D_{it} \times Size_{it}$	-0.0251***	-10.16	-0.028***	-10.35
$Return_{it} \times Size_{it}$	0.0021**	2.28	0.0025***	2.8
$D_{it} \times Size_{it}$	0.0012*	1.93	0.0005	0.78
$Size_{it}$	0.0083***	6.77	0.0089***	8.21
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0239***	2.66	0.0228**	2.34
$Return_{it} \times Leverage_{it}$	0.0019	0.4	-0.0003	-0.06
$D_{it} \times Leverage_{it}$	-0.0025	-0.71	-0.0036	-0.92
$Leverage_{it}$	-0.0174***	-5.86	-0.0215***	-6.83
$Return_{it} \times D_{it} \times MB_{it}$	-0.0049***	-3.31	-0.004***	-2.99
$Return_{it} \times MB_{it}$	-0.0012**	-2.35	-0.0014***	-3.5
$D_{it} \times MB_{it}$	0	0.01	0.0001	0.32
MB_{it}	-0.0011***	-2.89	-0.0008**	-2.18
Nobs	76,435		81,269	
R^2_{Adj}	0.2992		0.2612	

This table presents the regression results of estimating equation 2 on subsamples that include bankruptcy announcements in industries with sound performance. The sample period for this estimation is from 1980 to 2018. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.4: Intra industry spillover effects of bankruptcy and accounting conservatism in subsamples with no financial crisis

	Subsample excluded 2007-2010		Subsample excluded 2000-2004		Subsample excluded 2000-2004 and 2007-2010	
Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	0.0734***	6.3	0.0653***	6.83	0.0649***	5.86
$Return_{it} \times Spillover_{it}$	-0.0249***	-4.08	-0.0281***	-3.66	-0.0256***	-2.89
$D_{it} \times Spillover_{it}$	0.000	0.01	0.0005	0.1	-0.0018	-0.37
$Spillover_{it}$	0.0036	1.12	0.0033	0.96	0.0033	0.86
$Return_{it} \times D_{it}$	0.2238***	15.41	0.2342***	16.72	0.2104***	14.78
D_{it}	-0.0078*	-1.85	-0.0074	-1.65	-0.0078*	-1.72
$Return_{it}$	0.0048	0.71	-0.0045	-0.65	0.0088	1.17
$Return_{it} \times D_{it} \times Size_{it}$	-0.0253***	-9.9	-0.0268***	-11.77	-0.0253***	-10.99
$Return_{it} \times Size_{it}$	0.0011	1.14	0.0024**	2.38	0.0008	0.74
$D_{it} \times Size_{it}$	0.0005	0.66	0.0005	0.68	0.0006	0.78
$Size_{it}$	0.0089***	8.29	0.0094***	8.12	0.0092***	8.38
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0294***	3.14	0.018*	1.8	0.0209**	2.16
$Return_{it} \times Leverage_{it}$	-0.0021	-0.42	0.0054	1.25	0.0044	0.91
$D_{it} \times Leverage_{it}$	-0.0015	-0.38	-0.0037	-0.93	-0.0033	-0.82
$Leverage_{it}$	-0.0215***	-6.47	-0.0219***	-6.5	-0.0215***	-6.32
$Return_{it} \times D_{it} \times MB_{it}$	-0.006***	-3.72	-0.0061***	-3.03	-0.0044**	-2.08
$Return_{it} \times MB_{it}$	-0.0015***	-2.73	-0.0016***	-2.89	-0.002***	-3.36
$D_{it} \times MB_{it}$	-0.0002	-0.6	0	-0.01	-0.0001	-0.15
MB_{it}	-0.0008**	-2.14	-0.0011***	-2.84	-0.0011***	-2.96
NObs	79,186		75,649		66,437	
R^2_{Adj}	0.2794		0.2827		0.2908	

This table presents the regression results of estimating equation 2 on subsamples that exclude financial crisis. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.5: Placebo bankruptcy events and accounting conservatism

Placebo bankruptcy events				
	One year before actual bankruptcies		two years before actual bankruptcies	
Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times \ _{it} \times Spillover$	-0.0208	-1.6	-0.0432***	-3.37
$Return_{it} \times Spillover$	0.004	0.62	0.0072	1.57
$D_{it} \times Spillover$	0.0026	0.64	-0.0011	-0.25
$Spillover$	0.0009	0.31	-0.0028	-0.93
$Return_{it} \times D_{it}$	0.2472***	16.53	0.2481***	16.48
D_{it}	-0.0088*	-1.95	-0.0087*	-1.93
$Return_{it}$	-0.0095	-1.37	-0.0096	-1.39
$Return_{it} \times D_{it} \times Size_{it}$	-0.0245***	-9.42	-0.0243***	-9.35
$Return_{it} \times Size_{it}$	0.0018*	1.93	0.0018*	1.88
$D_{it} \times Size_{it}$	0.0006	0.85	0.0006	0.88
$Size_{it}$	0.0095***	8.07	0.0095***	8.06
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0263***	2.76	0.0261***	2.73
$Return_{it} \times Leverage_{it}$	-0.0012	-0.25	-0.001	-0.23
$D_{it} \times Leverage_{it}$	-0.0019	-0.47	-0.0019	-0.47
$Leverage_{it}$	-0.022***	-6.99	-0.0221***	-6.99
$Return_{it} \times D_{it} \times MB_{it}$	-0.006***	-4.6	-0.006***	-4.6
$Return_{it} \times MB_{it}$	-0.0012***	-2.69	-0.0012***	-2.76
$D_{it} \times MB_{it}$	0.0001	0.3	0.0001	0.27
MB_{it}	-0.0008*	-1.9	-0.0008*	-1.86
NObs	88,384		88,384	
R^2_{Adj}	0.271		0.2713	

This Table presents the regression results of estimating equation 2 for placebo bankruptcy events one year and two years before the actual bankruptcy. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.6: Regression Results Using the Accrual-Based Conservatism Measure in Givoly and Hayn (2000)

Dependent variable $CON\_ACC_{i,t}$		Coef	t-stat
$Spillover_{it}$	β_1	-0.0072***	-5.31
$Size_{it}$	β_2	0.0004	0.95
$Leverage_{it}$	β_3	-0.0088***	-7.58
MB_{it}	β_4	-0.0001	-0.38
$Sales\_Growth_{it}$	β_5	0.0124***	2.94
$RDADV_{it}$	β_6	-0.12***	-10.5
$CFO_{i,t}$	β_7	-0.0399**	-2.52
Nobs		66,231	
R^2_{Adj}		0.1182	

This table presents the regression results of estimating equation 3. The sample period for this estimation is from 1987 to 2018. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.7: The influence of industry concentration on the association between bankruptcy announcements and conservatism

	High concentrated industries		Low concentrated industries	
Dependent variable $Earnings_{it}$	Coef	t-stat	Coef	t-stat
$Return_{it} \times D_{it} \times Spillover$	0.0606***	3.39	0.0667***	5.5
$Return_{it} \times Spillover$	-0.0186***	-3.05	-0.0275***	-3.89
$D_{it} \times Spillover$	0.0068	1.27	-0.0015	-0.32
$Spillover$	-0.0015	-0.41	0.0029	0.73
$Return_{it} \times D_{it}$	0.2034***	11.96	0.2639***	11.6
D_{it}	-0.0116**	-2.2	-0.0036	-0.53
$Return_{it}$	0.0061	0.78	-0.017*	-1.95
$Return_{it} \times D_{it} \times Size_{it}$	-0.0219***	-7.77	-0.0291***	-7.12
$Return_{it} \times Size_{it}$	0.0013	1.15	0.0038***	2.86
$D_{it} \times Size_{it}$	0.0012	1.47	-0.0002	-0.16
$Size_{it}$	0.0078***	9.87	0.0107***	6.06
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0214	1.62	0.0303**	2.56
$Return_{it} \times Leverage_{it}$	-0.0059	-1	0.0008	0.13
$D_{it} \times Leverage_{it}$	-0.0059	-1.1	0.0009	0.18
$Leverage_{it}$	-0.0257***	-7.32	-0.0198***	-3.98
$Return_{it} \times D_{it} \times MB_{it}$	-0.0066***	-4.04	-0.0065***	-4.33
$Return_{it} \times MB_{it}$	-0.0013**	-2.1	-0.0011***	-2.21
$D_{it} \times MB_{it}$	0	0.01	0.0001	0.11
MB_{it}	-0.0017***	-3.64	-0.0004	-0.92
NObs	42,848		42,667	
R^2_{Adj}	0.2339		0.2959	

This table presents the regression results of estimating equation 2 for two subsamples of above and below the median of industry concentration. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.8: The spillover effects of bankruptcy filings and accounting conservatism in subsamples of with and without new financing

Panel A: Subsamples of firm years with and without new equity

	New equity issue		Zero equity issue	
Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	0.0475***	3.24	0.0907***	5.4
$Return_{it} \times Spillover_{it}$	-0.0243***	-3.67	-0.0286***	-3.16
$D_{it} \times Spillover_{it}$	-0.0041	-0.61	0.0058	1.3
$Spillover_{it}$	0.0014	0.34	0.008**	1.98
$Return_{it} \times D_{it}$	0.2293***	12.36	0.2268***	11.2
D_{it}	-0.011*	-1.73	-0.0106*	-1.95
$Return_{it}$	-0.0065	-0.9	-0.0015	-0.16
$Return_{it} \times D_{it} \times Size_{it}$	-0.0235	-6.96	-0.0286***	-9.23
$Return_{it} \times Size_{it}$	0.002	1.72	0.0039***	2.75
$D_{it} \times Size_{it}$	0.0009	0.77	0.0011	1.37
$Size_{it}$	0.0113	7.09	0.0057***	8.61
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0378	3.49	0.0252**	2.03
$Return_{it} \times Leverage_{it}$	-0.0066	-1.16	-0.0007	-0.12
$D_{it} \times Leverage_{it}$	-0.0037	-0.73	-0.0001	-0.01
$Leverage_{it}$	-0.018	-4.13	-0.0254***	-7.64
$Return_{it} \times D_{it} \times MB_{it}$	-0.0068	-5.53	-0.0078***	-4.12
$Return_{it} \times MB_{it}$	-0.0007	-1.64	-0.0007	-0.82
$D_{it} \times MB_{it}$	0.0005	1.02	-0.0001	-0.2
MB_{it}	-0.0011	-1.63	-0.0002	-0.46
Nobs	48,708		39,671	
R^2_{Adj}	0.3078		0.2222	

This table presents the regression results of estimating equation 2 for two subsamples of the first and the last quartile of leverage distribution. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.8: The spillover effects of bankruptcy filings and accounting conservatism in subsamples of with and without new financing

Panel B: Subsamples of firm years with and without new debt

	New debt issue		Zero debt issue	
Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	0.0839***	5.34	0.0538***	4.33
$Return_{it} \times Spillover_{it}$	-0.0291***	-4.18	-0.024***	-2.91
$D_{it} \times Spillover_{it}$	0.0039	0.76	-0.0022	-0.44
$Spillover_{it}$	0.0021	0.56	0.0057*	1.8
$Return_{it} \times D_{it}$	0.2269***	12.54	0.2158***	11.11
D_{it}	-0.0049	-0.8	-0.0123**	-1.99
$Return_{it}$	0.001	0.12	-0.004	-0.44
$Return_{it} \times D_{it} \times Size_{it}$	-0.0272***	-9.73	-0.02***	-6
$Return_{it} \times Size_{it}$	0.0022*	1.84	0.0015	1.02
$D_{it} \times Size_{it}$	0.0003	0.29	0.0012	1.21
$Size_{it}$	0.0073***	6.72	0.0125***	9.3
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0265**	2.57	0.0495**	2.43
$Return_{it} \times Leverage_{it}$	-0.0033	-0.65	-0.006	-0.66
$D_{it} \times Leverage_{it}$	-0.0045	-0.99	0.0032	0.46
$Leverage_{it}$	-0.0213***	-6.03	-0.0231***	-4.22
$Return_{it} \times D_{it} \times MB_{it}$	-0.0043**	-2.12	-0.008***	-6.55
$Return_{it} \times MB_{it}$	-0.0018**	-2.44	-0.0008*	-1.73
$D_{it} \times MB_{it}$	-0.0004	-0.69	0.0002	0.31
MB_{it}	-0.001**	-2.4	-0.0007	-1.26
NObs	48,145		40,237	
R^2_{Adj}	0.2608		0.2876	

This table presents the regression results of estimating equation 2 for two subsamples of above and below the median of leverage. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.9: The spillover effects of a peer firm's bankruptcy announcement on accounting conservatism a year after bankruptcy

Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times D_{it} \times Spill\_after$	0.0664***	6.34	0.0698***	6.79
$Return_{it} \times Spill\_after$	-0.0246***	-4.21	-0.0244***	-4.2
$D_{it} \times Spill\_after$	0.0034	1.02	0.0012	0.36
$Spill\_after$	0.0056**	2.16	0.0092***	3.25
$Return_{it} \times D_{it}$	0.1285***	18.42	0.236***	15.78
D_{it}	-0.0061***	-3.94	-0.0086*	-1.95
$Return_{it}$	-0.0008	-0.26	-0.0055	-0.85
$Return_{it} \times D_{it} \times Size_{it}$			-0.0258***	-10.27
$Return_{it} \times Size_{it}$			0.0024**	2.56
$D_{it} \times Size_{it}$			0.0006	0.9
$Size_{it}$			0.0092***	8.21
$Return_{it} \times D_{it} \times Leverage_{it}$			0.0283***	3.08
$Return_{it} \times Leverage_{it}$			-0.0019	-0.44
$D_{it} \times Leverage_{it}$			-0.002	-0.51
$Leverage_{it}$			-0.0216***	-6.78
$Return_{it} \times D_{it} \times MB_{it}$			-0.006***	-4.5
$Return_{it} \times MB_{it}$			-0.0013***	-3.31
$D_{it} \times MB_{it}$			0.0000	0.00
MB_{it}			-0.0007*	-1.84
NObs	88,384		88,384	
R^2_{Adj}	0.2130		0.2725	

This table presents the regression results of estimating the extended model of Basu (1997) in which Spill_after is a dummy variable taking value one if at least one bankruptcy occurred in the industry (SIC 4-digit) in year t-1. The sample period for this estimation is from 1980 to 2018. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.10: The influence of institutional ownership on the association between bankruptcy announcements and conservatism

Subsamples of above and below the median of institutional ownership

	High institutional ownership		Low institutional ownership	
Dependent variable $Earnings_{it}$	Coefficient	t-stat	Coefficient	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	0.0893***	6.14	0.0627***	4.15
$Return_{it} \times Spillover_{it}$	-0.0282***	-4.41	-0.0182***	-2.97
$D_{it} \times Spillover_{it}$	0.0023	0.49	0.0042	0.68
$Spillover_{it}$	0.0047	1.48	-0.0005	-0.11
$Return_{it} \times D_{it}$	0.2335***	9.87	0.2179***	10.55
D_{it}	-0.0048	-0.54	-0.0055	-0.84
$Return_{it}$	-0.0105	-0.71	0.0074	0.95
$Return_{it} \times D_{it} \times Size_{it}$	-0.027***	-7.52	-0.0281***	-7.02
$Return_{it} \times Size_{it}$	0.0026	1.42	0.0018	1.25
$D_{it} \times Size_{it}$	-0.0002	-0.15	-0.0001	-0.1
$Size_{it}$	0.0069***	5.57	0.0048***	4.14
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0339**	2.16	0.0117	1.01
$Return_{it} \times Leverage_{it}$	-0.0055	-0.74	-0.0016	-0.23
$D_{it} \times Leverage_{it}$	0.0021	0.36	-0.0049	-0.89
$Leverage_{it}$	-0.0223***	-4.99	-0.0258***	-5.37
$Return_{it} \times D_{it} \times MB_{it}$	-0.0084***	-4.53	-0.0045**	-2.15
$Return_{it} \times MB_{it}$	0.001	1.18	-0.0025***	-4.18
$D_{it} \times MB_{it}$	0.0006	0.83	0.0001	0.1
MB_{it}	-0.0012**	-2.47	-0.0015**	-2.12
NObs	29,528		29,522	
R^2_{Adj}	0.2368		0.2640	

This Table presents the regression results of estimating equation 2 for two subsamples of above and below the median of institutional ownership. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Table 3.11: The influence of board characteristics on the association between bankruptcy announcements and conservatism

Subsamples of above and below the median of board independence percentage

	Board Independence			
	High Independence		Low Independence	
Dependent variable $Earnings_{it}$	Coef	t-stat	Coef	t-stat
$Return_{it} \times D_{it} \times Spillover_{it}$	0.0472**	2.28	0.0219	0.96
$Return_{it} \times Spillover_{it}$	-0.0335***	-4.61	-0.0271**	-2.59
$D_{it} \times Spillover_{it}$	-0.0037	-0.74	-0.0056	-0.63
$Spillover_{it}$	0.0066	1.6	-0.0012	-0.23
$Return_{it} \times D_{it}$	0.3051***	8.72	0.3108***	8.21
D_{it}	-0.0088	-0.9	-0.0203	-1.48
$Return_{it}$	-0.0361**	-2.56	-0.0553***	-2.73
$Return_{it} \times D_{it} \times Size_{it}$	-0.0353***	-6.75	-0.0317***	-6.78
$Return_{it} \times Size_{it}$	0.0064***	3.29	0.0078***	2.96
$D_{it} \times Size_{it}$	0.0004	0.29	0.0024	1.39
$Size_{it}$	0.0083***	5.49	0.0134***	7.16
$Return_{it} \times D_{it} \times Leverage_{it}$	0.0565***	3.36	0.0584**	2.53
$Return_{it} \times Leverage_{it}$	-0.0035	-0.41	-0.0203	-1.46
$D_{it} \times Leverage_{it}$	0.014**	2.12	-0.0016	-0.16
$Leverage_{it}$	-0.0272***	-4.39	-0.023***	-3.02
$Return_{it} \times D_{it} \times MB_{it}$	-0.0072***	-3.15	-0.0097***	-4.16
$Return_{it} \times MB_{it}$	0.0018	1.63	0.0024**	2.23
$D_{it} \times MB_{it}$	0.0004	0.62	0.0002	0.33
MB_{it}	-0.0011**	-2.00	-0.0004	-0.58
Nobs	15,279		14,566	
R^2_{Adj}	0.2578		0.3088	

This Table presents the regression results of estimating equation 2 for two subsamples of above and below the median of Board Independence. ***,**, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively (two-tailed). We control for industry and year fixed effects. Standard errors are clustered by industry. See Appendix for variable definitions.

Appendix

Variable	Definition
$Earnings_{it}$	is annual income before extraordinary items (IB) of firm i in year t, scaled by the market value of equity (CSHO×PRCC_F) at the beginning of the fiscal year
$Return_{it}$	is annual buy and hold stock return inclusive dividends ending three months after fiscal year-end.
D_{it}	is an indicator variable equal to 1 if $Return_{it}$ is negative, and 0 otherwise.
Spillover	is an indicator variable equal to 1 if at least one bankruptcy occurred in the industry a year ago.
$Size_{it}$	is the natural log of the market value of equity (CSHO×PRCC_F)
$Leverage_{it}$	is the beginning value of total debt (DLTT+ DLC) divided by the market value of equity (CSHO×PRCC_F).
MB_{it}	is the value of the market to book value (CSHO×PRCC_F/ CEQ) at the beginning of the year.
$CON\_ACC_{i,t}$	is income before extraordinary items (#NI) minus cash flows from operations (#OANCF) plus depreciation expense (#DP) for firm i in year t scaled by beginning-of-year assets (#AT), averaged over three years(t, t+1, t+2)
$Sales\_Growth_{it}$	is the percentage of annual growth in total sales (#SALE) from year t–1 to year t.
$RDADV_{it}$	is research and development (#XRD) plus advertising expense (#XAD) for firm i in year t deflated by total sales.
$CFO_{i,t}$	is operating cash flow (#OANCF) for firm i in year t, scaled by total assets at the beginning of the year (#AT).

Chapter 4: The economic consequences of conditional conservatism

Abstract

Motivated by the ongoing debate on the desirability of accounting conservatism, this paper provides a review of research on the economic consequences of conditional accounting conservatism. This survey focuses on the effects of conditional conservatism on debt-contracting efficiency, information environments, cost of equity capital, and investment decisions. My survey reveals that the literature on the association between conditional conservatism and debt-contracting is mature and rich. While the majority of evidence suggests that conditional conservatism leads to positive economic consequences, However, I find some disparities in the findings of prior research. I highlight the potential sources of these disparities. Finally, I present promising future research avenues to address the disparities in the prior studies.

Keywords: Conditional accounting conservatism, information asymmetry, information environments, earnings management, cost of equity capital, investment decisions, risk-taking

4.1 Introduction

In this article, I review the economic consequences of conditional accounting conservatism which is one of the oldest and most controversial attributes of financial reporting. The literature on conservatism is voluminous and diverse. This article is not intended to be a comprehensive review, rather, it is designed to expose readers to the strands of the literature on conditional conservatism that has been largely overlooked by previous survey studies. More specifically, I review the economic consequences of employing conditional accounting conservatism. Conditional conservatism has been a hot topic of debate between legislators, standard setters, researchers, and practitioners. Hence, it is important to understand the costs and benefits of conditional conservatism.

Despite decades of research, the existing literature is still inconclusive in some aspects of the economic consequences of conditional conservatism. In this article, those aspects of the literature are summarised and critically reviewed. Specifically, I mainly focus on the impacts of conditional conservatism on information environments, cost of equity capital, and investment decisions. Given the importance of firms' transparency and information asymmetry in the capital market efficiency and investors' decisions, I review the effects of conditional conservatism on information environments. Moreover, understanding the informational role of conditional conservatism helps us to better explicate how conditional conservatism relates to the cost of equity capital. Ruch and Taylor (2015) also touch on the effects of conditional conservatism on information asymmetry and the cost of equity capital. However, I contribute to our understanding beyond Ruch and Taylor (2015) by providing a more comprehensive review of the literature and underpinning the sources of mixed previous findings. Prior reviews largely overlook studies on the association between conditional conservatism and investment decisions. Hence, in this study,

I will review this important strand of the literature. The benefits of conditional conservatism in debt contracting represent perhaps the best known and most heavily researched consequences of conditional conservatism. However, prior survey studies cover and fully discuss this line of research. Moreover, this line of research is relatively mature and conclusive as the theory underpinning the demand for conservatism from debtholders is well developed. The preponderance of the evidence also suggests that conditional conservatism improves debt-contracting efficiency. Therefore, I briefly summarize the literature on the relation between conditional conservatism and debt contracting.

Overall, this study provides a comprehensive review of the economic consequences of conditional conservatism in terms of information environments, cost of equity capital, and investment decisions. This study contributes to the literature by highlighting limitations of prior studies, discussing sources of mixed findings, and identifying under-explored areas that will provide avenues for future research.

The remainder of this article is organized as follows. Section 2 presents background on accounting conservatism. Section 3 reviews past survey studies on accounting conservatism. Section 4 briefly discusses studies on the contribution of conditional conservatism to debt-contracting efficiency. Section 5 discusses the literature on the effects of conditional conservatism on information environments as well as the cost of equity capital. Section 6 discusses studies on how conditional conservatism influences investment decisions. Section 7 concludes.

4.2. Background

Basu (1997, 4) defines accounting conservatism as “accountants' tendency to require a higher degree of verification for recognizing good news than bad news in financial statements”.

Accounting conservatism can be classified into two broad categories: conditional conservatism and unconditional conservatism. The difference between these two categories is that conditional conservatism depends on economic news, while accountants apply unconditional conservatism irrespective of economic news (Ruch and Taylor 2015). In their review of the literature, Ruch and Taylor (2015) point out that most studies in this field focus on conditional accounting conservatism because it provides information about "uncertain events." Given the prevalence of studies on conditional conservatism and its documented informational role, I focus on conditional conservatism in this study.

Watts (2003a) theorizes that there are four explanations for the prevalence of conservatism: contracting, litigation, regulation, and taxation. Qiang (2007) and Basu (2005) find that litigation, regulation, and taxation are the main demand sources for unconditional accounting conservatism. However, contracting and monitoring are the main determinants of conditional conservatism (Cheng, Huang, & Li. 2015). Garcia Lara, Garcia Osma, and Penalva (2009) also find that, in certain situations, regulation and taxation induce conditional conservatism.

Conditional conservatism is difficult to measure. Basu (1997) contends that accounting conservatism results in firms reporting bad news more quickly than good news, and he develops and tests a model of conditional accounting conservatism based on this argument. After the work of Basu (1997), the literature on conditional conservatism gains momentum and other models of conditional conservatism are developed by researchers and numerous studies explore the determinants and consequences of applying accounting conservatism and enrich the extant literature in this field of reporting.

4.3 Prior survey studies on conditional conservatism

Since conservatism has been a hot and controversial topic for many years, its literature is voluminous. Hence, there is no single survey study that covers all strands of conservatism literature. In this section, I briefly review past survey studies on conditional conservatism. Watts (2003, a&b) discusses explanations for the presence of conservatism and reviews empirical studies supporting his arguments. Basu (2009) explores the origin and history of accounting conservatism. He also reviews accounting conservatism research in China. Ewert and Wagenhofer (2011) cover the formal definitions of conservatism, the usefulness of conditional conservatism in debt-contracting, and the role of conservatism in impeding earnings management. Mora and Walker (2015) also discuss the implications of theoretical and empirical studies on conservatism for standard setters. Ruch and Taylor (2015) show that conservatism has implications for three main users of financial statements: (1) equity market users (2) debt market users and (3) corporate governance users. Zhong and Li (2017) review definitions of conservatism, proxies for conservatism, and sources of demand for conservatism. Penalva and Wagenhofer (2019) focus on the implications of conservatism for debt contracting.[18] These surveys neglect the literature on the impact of conditional conservatism on investment decisions. They also do not cover all key empirical and theoretical studies on the relation between conditional conservatism and information asymmetry as well as the cost of equity capital. Moreover, they largely overlook the reasons behind conflicting findings in these stands of the literature. This study is different from the prior surveys as it provides a comprehensive review of studies on the association between conditional conservatism and information environments, cost of equity capital, and investment decisions.

[18] Armstrong, Guay, and Weber (2010) and Shivakumar (2013) also review financial reporting in general and they briefly discuss accounting conservatism and its implications.

Moreover, limitations, potential sources of mixed results in the literature, and future avenues for research are also fully discussed.

4.4 Conditional conservatism and debt contracting

A recent study by Penalva and Wagenhofer (2019) provides a comprehensive review of the relation between conditional conservatism and debt-contracting efficiency. Therefore, in this section, I briefly review studies on conditional conservatism and debt contracting. Readers can learn more about this strand of the literature from the work of Penalva and Wagenhofer (2019).

Watts (2003a) theorizes that debtholders demand verifiable information on "lower ends of the earnings and net asset distributions" (P 212) and thus a verifiable loss is more relevant to debtholders than gains. Accounting conservatism provides lenders with more relevant information because it "requires a higher degree of verification to recognize good news as gains than to recognize bad news as losses" (Basu 1997, 7). The relevant information provided through accounting conservatism reduces information asymmetries between firms and debtholders, and thus, it is an efficient mechanism for debt contracting (Watts 2003a; Ruch and Taylor 2015). As suggested by Nikolaev (2010), accounting conservatism leads to efficient debt contracting because timely loss recognition enhances the signaling value of debt covenants and leads to early transfer of control rights from shareholders to bondholders, thereby restricting managerial actions on issues such as dividend payments, investments, and issuing new debt. Kravet (2014) argues that debtholders are not interested in risky investments because of the potential for wealth transfer to shareholders. He also argues that accounting conservatism restricts managers' incentives to make risky or negative NPV investments; under accounting conservatism, managers cannot defer reporting of losses on risky investments, and thus debtholders demand conservatism in financial

reporting. Numerous empirical studies show that debtholders demand accounting conservatism and the use of accounting conservatism reduces the cost of debt. Ahmed, Billings, Morton, and Stanford-Harris (2002) find that accounting conservatism mitigates the conflict between bondholders and investors, and is associated with a lower cost of debt. Zhang (2008) documents that accounting conservatism benefits borrowers through lower interest rates and lenders through more timely signals of default risk. Beatty, Weber, and Yu (2008) observe that in the presence of high agency costs of debt, lenders demand accounting conservatism by using conservative debt covenant modifications. In an international study, Ball, Kothari, and Nikolaev (2008) document the demand from debtholders for accounting conservatism around the world. Wittenberg-Moerman (2008) investigates the secondary loan market and finds that accounting conservatism is associated with a decrease in the bid-ask spread. Liu and Magnan (2014) show that accounting conservatism is positively related to the underpricing of newly issued bonds. Liu and Magnan (2016) find a positive association between the degree of accounting conservatism and the yield spread of corporate bond issues. The literature suggests that debt holders might explicitly request accounting conservatism (Ahmed et al. 2002; Beatty et al. 2008). Managers might also timely report losses to build a reputation for conservative reporting, and thus, facilitate future access to debt markets (Ahmed et al. 2002; Nikolaev 2010). While the preponderance of evidence suggests that conditional conservatism may facilitate debt-contracting, Gigler, Kanodia, Sapra, and Venugopalan (2009) raises concern that conditional conservatism may reduce debt-contracting efficiency. In their theoretical study, they contend that it is conceivable that reporting bad news more quickly than good news may lead to sending a false alarm, as a firm may report losses for a profitable project. The false alarm may motivate debtholders to take action to protect their wealth. Therefore, conditional conservatism may impair debt-contracting efficiency.

4.4.1 Discussion and future research opportunities

There is a wealth of evidence that conditional conservatism positively contributes to the debt-contracting process. However, as pointed out by Gigler et al. (2009), under certain scenarios, conservative reporting may lead to sending false alarms. Intuitively, higher-risk projects and projects with longer investment cycles may generate less revenue at the beginning. Under conditional accounting conservatism, firms also defer recognizing part of gains to future periods. Hence, the likelihood of a firm sending a false alarm (i.e., reporting loss) for a high-risk project or a project with a long investment cycle is high. Future studies could explore whether conditional accounting conservatism impairs debt-contracting efficiency when a firm invests in such projects. Future studies could also investigate whether managers remain committed to conservative reporting when they invest in a high-risk project or a project with a long investment cycle.

4.5 Conditional conservatism, information environments, and cost of equity capital

4.5.1 The effects of conditional conservatism on information environments

In this section, we review studies that investigate how conditional conservatism shapes information environments. Information asymmetries and quality of information environments determine the cost of equity capital and affect investment decisions by investors. Conditional conservatism also influences insider trading through its informational role (e.g., Khalilov, & Garcia Osma, 2020). Hence, it is important to understand how conditional conservatism impacts information environments and information asymmetries between insiders and outsiders.

The majority of prior studies suggest that conditional conservatism improves firms' information environments. One intuition behind this perspective is that, under a conditional

accounting conservatism system, there is less uncertainty about the future cash flows as all bad news is reflected in earnings in a timely manner. In other words, conditional accounting conservatism reduces information asymmetries (e.g., Guay and Verrecchia 2007). The other intuition behind this perspective is that accounting conservatism limits managers' ability to opportunistically overstate earnings and mislead outsiders (e.g., Watts. 2003a&b).

Information asymmetries

Consistent with the intuition that conditional conservatism leads to less uncertainty about the future cash flow, empirical studies find evidence that conditional conservatism alleviates information asymmetries between managers and outsiders. For instance, LaFond and Watts (2008) report that firms use more conditional accounting conservatism when information asymmetry between insiders and outsiders is high. Table 1 presents a summary of studies that explicate the association between conditional conservatism and information environments.

Khan and Watts (2009) also document that firms use more conditional accounting conservatism when expected information asymmetries (as measured by firm age and firm investment cycle length) are high. They also find that firms exhibit a higher degree of conditional conservatism following increases in the probability of litigation and stock return volatility. Overall, they provide evidence that firms employ more conditional accounting conservatism to attenuate information asymmetries.

Kim, Li, Pan, and Zuo (2013) also investigate how conditional conservatism influences the stock prices of firms around the announcement of seasoned equity offerings (SEOs). They find that firms that use more conditional conservatism experience less negative stock returns around the announcement of SEOs. They conclude that SEOs announcement returns increase with the

degree of conditional accounting conservatism because conservatism reduces information asymmetries between equity issuers and potential investors.

Garcia Lara, Garcia Osma, and Penalva (2014) investigate how conservatism in accounting influences a firm's information environment. They report that conditional conservatism is negatively associated with the future bid-ask spread and stock-returns volatility. They also observe that increase in conditional conservatism leads to more accurate and less dispersed analysts' forecasts and higher analyst coverage.

D'Augusta, Bar-Yosef, and Prencipe (2016) find that the degree of conditional conservatism is negatively related to investor disagreement surrounding earnings announcements. They posit that accounting conservatism enhances the credibility of earnings and alleviates information asymmetry. Hence, conditional conservatism reduces investor disagreement.

Kim and Zhang (2016) document a negative association between conditional conservatism and the likelihood of a firm's future stock price crashes. They argue that as conditional conservatism limits managers' ability to boost earnings and hide bad news, it reduces stock price crash risk.

Table 1 about here

Analysts' earnings forecasts

In this subsection, I review studies that explore how conditional conservatism influences analysts' earnings forecasts. Table 2 displays a summary of studies in this line of research. The literature provides mixed results on how conditional accounting conservatism influences financial analysts' earnings forecasts accuracy. For instance, Mensah, Song, and Ho (2004) argue that asymmetric reporting leads to earnings volatility, and therefore, accounting conservatism increases

analyst forecast errors and dispersion. First, they find that there is a positive association between Penman and Zhang's (2002) measure of unconditional conservatism and the absolute values of analyst forecast errors and dispersion. They also use a measure of conservatism that captures both unconditional and conditional conservatism and find a positive but weak association between conservatism and the absolute values of analyst forecast errors and dispersion.

Helbok and Walker (2004) find that financial analysts do not fully incorporate the implications of accounting conservatism into their earnings forecasts. In other words, financial analysts do not understand accounting conservatism and they consider gains and losses as firms report them. Louis, Lys, and Sun (2008) also confirm Helbok and Walker's (2004) findings and report that initial analyst forecast is biased as analysts do not fully incorporate conservatism in their forecast. Pae and Thornton (2010) also document that financial analysts fail to adjust their forecast for conservatism. Kim, Nekrasov, Shroff, and Simon (2012) also find that, on average, analysts do not consider conservatism in their forecasts but more sophisticated analysts adjust their forecasts for the effect of conservatism. However, Sohn (2012) provides evidence that analysts effectively impound conservatism into their earnings forecasts, and conservatism facilitates predicting earnings.

Table 2 about here

Earnings management

In this subsection, studies on the relationship between conditional conservatism and earnings management are discussed. A summary of these studies is provided in Table 3. Overall, this line of research suggests that conditional conservatism curtails earnings management. Ball (2001) argues that conditional accounting conservatism requires a higher degree of verification for gains and thus constrains managers' ability to opportunistically overstate earnings. Other studies

also contend that conditional conservatism impedes earnings management by limiting opportunities to manipulate earnings (e.g. Watts 2003; Lafond and Watts 2008). Chen, Hemmer, and Zhang (2007) analytically show that under an accounting conservatism system, financial statement users understand that small accounting numbers do not indicate that the firm is poorly performing. Hence managers do not have an incentive to opportunistically inflate earnings. Therefore, accounting conservatism impedes earnings management by dampening managers' incentives to manipulate earnings. By adopting a different analytical approach, Gao (2013) also finds that conditional accounting rules discourage managers from engaging in earnings management by imposing additional costs to opportunistic earnings manipulation.

In contrast with these articles, two analytical studies conclude that conditional accounting conservatism may lead to more earnings management. Bertomeu, Darrough, and Xue (2017) show that since conservatism is associated with unfavorable reports (before manipulation), managers have the incentive to reduce the likelihood of reporting unfavorable information by either engaging in ex-ante earnings manipulation or working harder. To induce managers to work harder instead of manipulating earnings, the principal has to implement a steeper pay-for-performance contract, which in turn motivates managers to manipulate earnings. Caskey and Laux (2017) posit that accounting conservatism helps the board of directors to monitor managers effectively. Hence, a conservative system promotes board interventions, which in turn give managers incentives to deceive the board by manipulating earnings.

Garcia Lara, Garcia Osma, and Penalva (2020) examine earnings management after the introduction of SFAS 121 which leads to more conservatism in financial reporting. They report a lower level of accrual-based earnings management following the passage of SFAS 121, suggesting that conditional conservatism reduces accrual-based earnings management. They also observe that

firms switch from accrual-based earnings management to real earnings management after the passage of SFAS 121. However, they find that this shift to real earnings management is moderate and accounting conservatism reduces the overall degree of earnings overstatement.

Table 3 about here

4.5.2 Cost of equity capital

Next, we review the literature on the association between conditional conservatism and the cost of equity capital. The cost of equity capital is the required rate of return investors use to discount future expected cash flows to arrive at the current stock price. Understanding how conditional accounting conservatism influences the cost of equity capital is important as it influences financial costs and the capital structure of firms. A firm's cost of equity capital consists of a risk-free rate plus a risk premium. The risk premium depends on the uncertainty about a firm's future operation. Disclosing more information reduces uncertainty about future cash flow (Christensen, de la Rosa, & Feltham 2010). One can argue that conditional accounting conservatism alleviates uncertainty about future cash flow by reporting bad news in a timely fashion. Thus, conditional accounting conservatism reduces the cost of equity capital. However, the existing evidence on the impact of conditional conservatism on the cost of equity capital is mixed. A list of studies that explore the association between conditional conservatism and the cost of equity capital is presented in Table 4[19].

Francis, LaFond, Olsson, and Schipper (2004) investigate the association between different earnings attributes and the cost of equity capital. They find that generally, earnings quality reduces

[19] Penman and Zhang (2020) also develop a model that shows unconditional accounting conservatism through an asset pricing framework relates to the cost of capital. Their study is not included in this survey as it focuses on unconditional conservatism.

the cost of equity capital. However, they failed to find a significant association between conditional accounting conservatism and the cost of equity capital. They explain that conditional accounting conservatism is a desirable quality of earnings. However, conditional conservatism introduces bias into earnings as it does not provide precise information about good news. As such conditional conservatism increases uncertainty regarding "the true values of pay-offs".

Chan, Lin, and Strong (2009) examine the impact of conditional and unconditional accounting conservatism on the cost of equity capital in UK firms. They argue that unconditional accounting conservatism reduces uncertainty about future earnings and thus reduces the cost of equity capital. They also posit that conditional accounting conservatism provides opportunities, such as big-bath accounting and excessive provisions for reserves, to manipulate earnings. Consistent with their arguments, they find a negative (positive) association between unconditional (conditional) conservatism and the cost of equity capital.

Using different methodologies and proxies, Garcia Lara, Garcia Osma, and Penalva (2011) find a negative association between conditional accounting conservatism and the cost of equity capital. They posit that this negative association exists because conditional accounting conservatism reduces uncertainty about future cash flow as well as the volatility of future stock prices.

Li (2015) empirically examines the association between conditional conservatism and the cost of equity capital and debt in an international setting. She reports a lower cost of equity capital and lower cost of debt in firms from countries with more conservative financial reporting systems. She also finds that conservative financial reporting systems and legal enforcement complement each other in reducing the cost of equity capital and cost of debt. She attributes a lower cost of equity capital to lower agency costs under a conservative system. She argued that conditional

conservatism reduces agency costs because timely loss recognition helps shareholders to exercise greater oversight over managers and minimize their potential losses.

In an analytical study, Johnstone (2016) challenges the conventional wisdom that releasing more information reduces the cost of equity capital by alleviating uncertainty about the magnitude and timing of future cash flow. He shows in his analytical model that more information could make decision-makers less certain about future cash flow in some cases. He also argues that more precise unfavorable information (i.e. bad news) may lower expected future cash payoff and thereby increase the cost of equity capital. Although Johnstone (2016) does not focus on conditional conservatism, however, his study offers an important insight regarding disclosing unfavorable news (or bad news) in a timely manner.

Biddle, Ma, and Wu (2017) document a positive association between conditional conservatism and the cost of equity capital. They posit that timely recognition of bad news is associated with a risk component and lowers expected pay-off. They also point out that although conditional conservatism improves the quality of earnings, it may exacerbate heterogeneity of opinions among equity market participants by reporting unexpected bad news. Thus, conditional conservatism may increase the cost of equity capital. They find that the positive relation between conditional conservatism and the cost of equity capital disappears after the passage of the Sarbanes-Oxley Act of 2002 (SOX). They conclude that the nationwide improvement in financial transparency, enhancement in information environments, and higher market efficiency, weakened the association between conditional conservatism and cost of equity capital after SOX.

Goh, Lim, Lobo, and Tong (2017) investigate the research question of whether and how conditional conservatism influences a firm's choice between equity and debt when the firm raises external capital. They find that firms with more conditional conservatism use more equity than

debt when they raise external financing. They document that conditional accounting conservatism reduces the cost of equity capital more than the cost of debt. They report that conditional conservatism alleviates more information asymmetries between firms and equity market participants than between firms and lenders. They also find that the positive impact of conditional conservatism on preference for equity over debt is more pronounced when the information asymmetry is high.

Ramalingegowda and Yu (2018) test the relation between conditional accounting conservatism and firms' capital structure adjustments. They find that, on average, conditional accounting conservatism facilitates access to finance and improves the speed of capital structure adjustment. However, they find that their results are significant among only under-levered firms and conditional accounting conservatism only facilitates debt issuance. They fail to find any evidence that conditional accounting conservatism is related to equity issuance.

Table 4 about here

4.5.3 Discussions and future research opportunities

Despite the number and the variety of studies, there is still a debate in the literature on the association between conditional conservatism and the cost of equity capital. In sum, one set of studies suggests that conditional accounting conservatism is negatively related to the cost of equity capital. The main argument of this set of studies is that conservative firms report bad news in a timely manner and equity market participants can acquire information about good news from other sources. Hence, under a conditional accounting system, there will be less uncertainty about the future cash flow. The other set of studies propose a positive association between conditional

conservatism and the cost of equity capital. The main argument of this set of studies is that since conditional conservatism provides the most unfavorable news, it lowers expectations about future cash flow. Thus, conditional conservatism increases the cost of equity capital.

The literature largely overlooks how the equity market participants understand and consider the implications of conditional conservatism. If investors fully understand the implication of conditional conservatism and they are aware of good news from different sources (e.g. conference calls); then, timely bad news recognition and higher verifiability of good news recognition may reduce uncertainty about firms' future cash flow and thus lower cost of equity capital. However, if investors do not understand the usage of conditional conservatism, then they interpret low earnings as the true economic performance of a firm. Under this scenario, conditional accounting conservatism lowers expected future cash payoff and thus increases the cost of equity capital. Therefore, the direction and magnitude of conditional conservatism effects on the cost of equity capital depend on the extent to which investors understand firms' usage of conditional conservatism.

Prior studies largely fail to investigate specific scenarios where conditional conservatism has negative (or positive) effects on the cost of equity capital. As discussed above, conditional conservatism's effects on the cost of equity capital depend on how investors understand conditional conservatism. Therefore, future studies should explore where and how the equity market participants understand the usage of conditional conservatism to identify scenarios where conservatism negatively (or positively) influences the cost of equity capital.

There is limited evidence on how equity market participants understand the accounting practice of firms. Few studies explore how financial analysts understand conditional conservatism and as previously mentioned they find mixed evidence (e.g. Mensah, et al., 2004; Helbok and

Walker, 2004; Louis et al., 2008; Pae and Thornton, 2010; Kim et al., 2012; Sohn, 2012). Future studies could examine which factors help financial analysts understand conditional conservatism. The ability to understand the implications of conditional conservatism should also vary across financial analysts. For example, geographic proximity, analysts' industry expertise, or analysts' experience may influence the extent that financial analysts understand the implications of conditional conservatism.

Apart from financial analysts, the presence of other capital market participants may also help the whole capital market incorporates the implications of accounting conservatism into their valuation and assessment of firms' operations. For instance, options traders have a superior ability in processing public data and they may acquire private information. They may know how conditional conservatism influences earnings, adjust their expected future cash flow, and choose their trading strategy accordingly. The stock market may learn about the true value of firms from the trading behavior of options traders (e.g. Truong & Corrado, 2014). Therefore, an active options trading market may help correct stock undervaluation and lead to a negative association between conditional accounting conservatism and the cost of equity capital.

The advent of new technologies may also influence how the equity market participants process firms' financial statements and other public data. For instance, there is substantial evidence that the introduction of EDGAR in 1994 improved analysts' earnings forecast accuracy and enhanced price informativeness (Asthana and Balsam, 2001; Qi, Wu, & Haw, 2000; Asthana, Balsam, & Sankaraguruswamy., 2004; Gao and Huang, 2020). The literature also suggests that XBRL reduces processing costs (Blankespoor, de Haan, & Marinovic, 2020). Overall XBRL and EDGAR help investors analyze financial statements more efficiently (Blankespoor et al., 2020). As such we could expect that these new technologies help investors better understand firms' usage

of conditional accounting conservatism. A potential avenue for future research is to examine whether these technologies influence the link between conditional conservatism and the cost of equity capital by facilitating processing information.

The rise of high-frequency trading (HFT) and algorithmic trading (AT) may also impact the link between conditional conservatism and the cost of equity capital. The literature is still incipient on how HFT and AT influence the processing of information by investors (Blankespoor, et al. 2020). AT refers to using computers to automatically execute trading. AT and HFT improve the speed of incorporating information into stock prices (Zhang 2013; Bizzozero, Flepp, Franck, 2018). However, as pointed out by Blankespoor et al. (2020), more research is needed to understand how AT and HFT influence processing information. Recent evidence suggests that AT and HFT reduce price informativeness by discouraging information acquisition and informed trading (e.g Weller, 2018; Lee and Watts, 2021). To the best of my knowledge, there is no study examining how AT and HFT influence processing complex accounting practices in the capital market. AT and HFT may impact the extent that the market incorporates the implications of conditional conservatism into stock prices. Hence, it would be interesting to examine how AT and HFT influence the link between conditional conservatism and the cost of equity capital.

The inherent complexity of a firm and its transactions may also hinder understanding of the implication of conditional conservatism. For instance, it is well documented that it is harder to analyze a multi-segment firm's information than a single-segment firm's information (Frankel Kothari, & Weber, 2006; Cohen & Lou, 2012). Foreign operations also make it harder to process and understand the operation and financial position of a firm (Huang, 2015). Future research could examine whether and how complexity influences the understanding of conditional conservatism

by the equity market participants, which in turn may impact the relation between conditional conservatism and the cost of equity capital.

Studies on the link between conditional conservatism and the cost of equity capital largely overlook that some mechanisms may act as a substitute for conditional conservatism in lowering the cost of equity capital. For instance, firms may rely on different channels of disclosure to communicate bad news to investors (e.g. conference calls, management earnings forecasts) to reduce information asymmetries and cost of equity capital. Corporate social responsibility (CSR) activity also provides better access to finance for a firm (Cheng, Ioannou, and Serafeim, 2014). Hence, a firm that invests in CSR may exhibit less conditional conservatism as CSR engagement reduces cost of equity capital. Options trading reduces information asymmetries and the cost of equity capital (Naiker, Navissi, and Truong 2013). Thus, a firm may use less conservatism to reduce the cost of equity capital, when options trading volume is high. Therefore, one main limitation of prior studies is that they do not control these mechanisms when examining the link between conditional conservatism and the cost of equity capital. Future studies should address this limitation in investigating the association between conservatism and the cost of equity capital.

The relation between conditional conservatism and the cost of equity capital may suffer from endogeneity bias. Omitted variables may drive both conditional conservatism and the cost of equity capital. Reverse causality may also explain the association between these two variables. Future studies should address the endogeneity bias in examining the link between conditional conservatism and the cost of equity capital. Future research could consider the passage of SFAS 121 as a natural experiment that increased conditional conservatism (Garcia Lara et al. 2020) and examine the difference between the cost of equity capital before and after the introduction of SFAS 121.

4.6 Conditional conservatism and firms' investment decisions

In this section, I review how conditional conservatism influences corporate investment decisions. Twenty years ago, Ball (2001) points out that timely loss recognition may influence managers' investment decisions. However, this strand of the literature is relatively new. Most of the related studies have been published in the last 10 years. Table 5 panel A displays a list of studies that examine how conditional conservatism influences investment efficiency. A list of studies on the impact of conditional conservatism on corporate risk-taking is also provided in Table 5 Panel B.

4.6.1 Investment efficiency

Ball (2001) argues that as under a conditional conservatism system, firms recognize losses quickly but require a higher degree of verification for recognizing gains, managers do not invest in negative net present value (NPV) projects or quickly abandon such projects and invest in positive NPV projects. In other words, conditional conservatism reduces agency problems as aligns managers' and shareholders' interests.

Francis and Martin (2010) examine how conditional conservatism influences acquisition-investment decisions. Consistent with Ball's (2001) argument, they find that firms with a high degree of conservatism make more profitable acquisitions, suggesting that firms pursue positive NPV projects. They report that while the likelihood of post-acquisition divestitures among firms with high level of conservatism is low when these firms decide to divest, they do so very quickly. This suggests that firms with more conditional conservatism quickly quit negative NPV projects. Moreover, they find that the impact of conditional conservatism on acquisition-investment

decisions is stronger among firms with higher ex-ante agency costs, confirming that conditional conservatism aligns shareholders-managers interests.

Bushman, Piotroski, and Smith (2011) examine the relation between conditional accounting conservatism and corporate investment behavior in an international setting. They find that firms' investment is more sensitive to declining investment opportunities when country-level conditional accounting conservatism is high. However, they fail to find any evidence that firms' investment is more sensitive to an increase in investment opportunities in countries with a high level of conditional conservatism.

García Lara, García Osm, and Penalva (2016) investigate the association between conditional conservatism and firm investment efficiency. They hypothesize that conditional conservatism improves investment efficiency in two different scenarios. In the first scenario, conditional conservatism helps firms that are prone to underinvestment to invest more. More specifically, they predict that when a firm is financially constrained, conditional conservatism facilitates debt financing and encourages managers to invest in positive NPV projects and avoid investing in negative NPV projects as well as in highly risky projects. In the second scenario, conditional conservatism disciplines managers of firms that are prone to overinvestment to invest less. They explain that in firms with sufficient resources, managers may invest in negative NPV projects to pursue their personal interests. Timely loss recognition reveals the negative outcomes of such projects and draws the attention of the board of directors. Hence, conditional conservatism discourages managers from investing in negative NPV projects. Consistent with their argument, they find that conditional conservatism leads to higher investment efficiency.

Balakrishnan, Watts, and Zuo (2016) investigate how conditional conservatism influences investment during the 2007-2008 financial crisis. They predict that conditional conservatism

reduces the negative impact of the financial crisis on corporate investment as conditional conservatism facilitates access to debt financing. Consistent with their prediction, they document a more significant decline in investment among firms with less conditional conservatism. Their results corroborate García Lara et al.'s (2016) findings that conditional conservatism reduces underinvestment.

Hsu, Novoslov, and Wang (2017) investigate how conditional conservatism helps overconfident CEOs to make better decisions. They explain that overconfident CEOs tend to overlook projects with poor performance. Timely loss recognition may inform CEOs and governance mechanisms about the negative NPV project in a timely fashion. Therefore, under a conditional conservatism system, CEOs may abandon negative NPV projects earlier. Consistent with their hypothesis, they find that conservative firms with overconfident CEOs have better cash flow performance.

Ha and Feng (2018) find a positive association between conditional accounting conservatism and labor investment efficiency. They argue that first conditional conservatism helps firms to access the optimal funding for labor investment by improving the relationship with capital providers. Secondly, timely recognition of losses, provides early warnings signs regarding inefficient investment. Jung, Kim, Lee, and Yoo (2017) also show that conditional conservatism is associated with higher corporate layoffs efficiency.

Laux and Ray (2020), analytically challenge the findings of prior studies that conditional conservatism curbs risk-taking and impedes innovation. They analytically show that the corporate board understands the implications of conditional conservatism and therefore they design the compensation contract in a way that encourages the CEO to invest in R&D projects.

Chen, Haung, Jiang, Zhang, and Zhang (2021) analytically examine how timely loss recognition relates to firms' performance through the feedback channel of capital markets. They show that timely loss recognition influences the trading behaviors of capital market participants and ultimately results in higher price informativeness. Hence, timely loss recognition leads to better investment decisions as higher price informativeness provides better feedback for firms.

Table 5 about here

4.6.2 Risk-taking and managerial horizon

In a review of Ball's (2001) study, Leuz (2001) points out that conditional conservatism may lead to underinvest as managers may refrain from engaging in long-term projects because they do not generate profit during their tenure.

Roychowdhury (2010) argues that while conditional conservatism impedes investment in negative NPV projects, it may also deter investment in risky projects with positive NPV. The reason is that riskier projects are more likely to lead to losses and managers have to report all losses immediately, under a conservative accounting system. Moreover, if a risky project generates gains, managers have to defer some gains to the future. Therefore, there is a high likelihood of reporting losses than gains for risky projects, under a conditional conservatism system. Thus, a risk-averse manager may avoid engaging in high-risk projects as there is a high likelihood that they may report losses in the short term.

Kravet (2014) investigates the impact of conditional accounting conservatism on managerial risk-taking incentives in the context of acquisition. He finds that conditional conservatism is negatively associated with the likelihood of making risky acquisitions. He further finds that managers avoid making risky acquisitions as they do not want to report losses in short

term and thus trigger accounting-based debt covenants. He concludes that one reason that lenders demand conditional conservatism might be to limit managerial risk-taking incentives, which may result in transferring wealth from debtholders to shareholders.

Cedergren, Lev, and Zarowin (2015) also investigate the association between conditional accounting conservatism and acquisition-investment decisions. They use the passage of SFAS 142 as an exogenous regulatory change that leads to a higher degree of conditional conservatism. They find that following the introduction of SFAS 142, firms undertake less profitable as well as less risky acquisitions. Their results are consistent with Kravet's (2014) findings that conditional conservatism is negatively related to managerial risk-taking incentives. However, in contrast with Francis and Martin's (2010) findings, they document that conditional conservatism leads to investment in less profitable projects. They attribute the disparities between their results and those reported in Francis and Martin's (2010) to omitted variables.

Chang, Hilary, Kang, and Zhang (2015) examine the impact of conditional conservatism on corporate innovation. They argue that R&D activities are inherently risky and they are prone to be discontinued or delayed by economic shocks. Under conditional conservatism, managers avoid such projects as they should report all losses related to R&D activities immediately. As such, conditional conservatism induces the short-term orientation of managers. Consistent with their argument they find that firms with more conditional conservatism, generate fewer patents. Moreover, patents of conservative firms are associated with fewer citations and lower economic benefits.

Ha (2020) explores how conditional conservatism influences risk-taking in the context of the bank industry. She posits that managers tend to withhold bad news and disclose good news to the market. However, under a conditional conservatism system, firms report bad news more

quickly than good news and thus conditional conservatism improves informational transparency. Hence, higher transparency helps outsiders better monitor managers and limits excess managerial risk-taking. Consistent with her argument, she finds that conditional conservatism reduces banks' risk-taking in lending and leads to higher loan portfolio quality.

4.6.3 Discussions and future research opportunities

In sum, there are two perspectives on how conditional conservatism influences firms' overall operations. One perspective posits that conditional conservatism encourages managers to avoid or abandon negative NPV projects and invest in positive NPV projects. Thus, conditional conservatism improves firm investment efficiency. The other perspective argues that conditional conservatism discourages managers from investing in risky projects and it also increases the probability of managerial short-termism.

While the literature provides evidence supporting both views, to the best of my knowledge, there is no study attempting to reconcile these two perspectives. Given the compelling reasons offered by researchers, there may be truth to both perspectives. However, under different scenarios, conditional conservatism may have different effects on managers' investment decisions. One possibility is that conditional conservatism has nonlinear impacts on managers' decisions. For instance, while conditional conservatism encourages managers to take risks and invest in positive NPV projects, it may discourage them from investing in extremely risky projects. The other plausible scenario is that the relation between conditional conservatism and managers' investment decisions differs considerably across the conditional conservatism distribution. Specifically, in low levels of conditional conservatism, there may be a positive relation between conditional conservatism and investment efficiency. However, in its high levels, conditional conservatism may

discourage managers from taking risks or investing in projects with long-term positive cash flow. Research in this area is important since we need to understand what is the optimal level of conditional conservatism.

Future studies also could explore variables that may influence the relation between conditional conservatism and managers' investment decisions. For instance, the CEO's compensation package, which largely shapes CEOs' incentives, may influence the relation between conditional conservatism and investment decisions.

Moreover, previous studies rest on the implicit assumption that managers consistently use conditional conservatism. In other words, it is assumed that managers do not change the degree of using conditional conservatism in response to projects' outcomes. This assumption holds if corporate governance mechanisms effectively enforce managers' adherence to conditional conservatism (Roychowdhury, 2010). Therefore, governance mechanisms play an important role in the relation between conditional conservatism and investment decisions. It is reasonable to argue that conditional conservatism helps governance mechanisms in monitoring managers' investment decisions. Therefore, future studies should consider the interactions between conditional conservatism and governance mechanisms in exploring the effects of conservatism on investment decisions.

Endogeneity is the common limitation of studies in this line of research as omitted variables may drive both conditional conservatism and investment decisions. For instance, institutional investors may demand conditional conservatism (Ramalingegowda and Yu, 2015), and also they may influence acquisition decisions (Andriosopoulo and Yang, 2015). It is also conceivable that a risk-averse CEO employs more conditional conservatism to reduce the risk of shareholder litigation and also avoids making risky acquisitions. Cedergren et al. (2015) attempt to address the

endogeneity concern by using the passage of SFAS 142 as an exogenous regulatory change that increased conditional conservatism. However, SFAS 142 was adopted by firms in the first quarter of 2002 and the Sarbanes-Oxley Act (SOX) was also implemented in 2002 as well. Hence, Cedergren et al.'s (2015) findings may be attributed to the implementation of SOX, which has various governance and reporting implications (Coates and Srinivasan, 2014). Future research could use the introduction of SFAS 121, which leads to more conditional conservatism reporting (Garcia Lara et al., 2020) as a quasi-experiment to address the endogeneity concern in the relation between condition conservatism and investment decisions.

Table 6 about here

4.7 Conclusion

The objective of this study is three-fold: (i) to summarize and highlight the area of the research on the economic consequences of conditional conservatism that has been largely overlooked by previous studies, (ii) to identify reasons behind mixed findings in the literature, and (iii) to present potential avenues for future research.

The preponderance of the evidence is weighted towards the favorable economic consequences of conditional conservatism. However, this survey reveals that some studies fail to find evidence in favor of positive economic consequences of conditional conservatism in terms of the cost of equity capital and risk-taking. I argue that the association between conditional conservatism and the cost of equity capital depends on how equity capital market participants understand the implications of conditional accounting conservatism. This highlights that future research is needed to better understand the scenarios where capital market participants understand the usage of conditional conservatism. Future studies also should explore how developments in

financial markets (e.g. development in the options market, algorithmic trading) may influence the processing of accounting information, which may affect the association between conditional conservatism and cost of equity capital.

This study makes it clear that we still need more research to fully understand how conditional conservatism influences investment decisions and risk-taking by managers. It is conceivable that there is a nonlinear association between these variables. The role of mediating factors also should not be overlooked by future studies. In particular, governance mechanisms should be considered by future studies as strong governance mechanisms enforce managers to commit to conservative reporting regardless of projects outcomes.

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Table 4.1: Studies on the effects of conditional conservatism on information environments

Author(s)	Research Question	Sample	Findings
Khan and Watts (2009)	What are the cross-sectional determinants of conditional conservatism?	US firms (1962–2005)	Firms use more conditional accounting conservatism when expected information asymmetries (as measured by firm age and firm investment cycle length) are high.
Kim, et al. (2013)	What is the role of accounting conservatism in the equity market?	US firms (1989–2008)	They find that firms that use more conditional conservatism experience less negative stock returns around the announcement of SEOs, suggesting that conservatism reduces information asymmetries between equity issuers and potential investors.
Garcia Lara, et al. (2014)	What are the information consequences of conservatism in accounting?	US firms (1977–2007)	Conditional conservatism is negatively associated with the future bid-ask spread and stock-returns volatility.
D'Augusta, et al. (2016)	What are the effects of conservative reporting on investor disagreement?	US firms (1980–2009)	The degree of conditional conservatism is negatively related to investor disagreement surrounding earnings announcements.
Kim and Zhang (2016)	Does conditional conservatism reduce the likelihood of a firm's future stock price crashes	US firms (1964–2007)	There is a negative association between conditional conservatism and the likelihood of a firm's future stock price crashes.

Table 4.2: Studies on the effects of conditional conservatism on financial analysts' forecasts

Author(s)	Research Question	Sample	Findings
Mensah et al. (2004)	What is the impact of accounting conservatism on analysts' annual earnings forecast accuracy and dispersion?	US firms (1987–1999)	They also use a measure of conservatism that captures both unconditional and conditional conservatism and find a positive but weak association between conservatism and the absolute values of analyst forecast error and dispersion.
Helbok and Walker (2004)	What is the impact of accounting conservatism on analysts' annual earnings forecast accuracy and dispersion?	US firms (1990–1998)	Financial analysts do not fully incorporate the implications of accounting conservatism into their earnings forecasts
Louis et al. (2008)	What is the impact of accounting conservatism on analysts' annual earnings forecast accuracy and dispersion?	US firms (1993–2010)	The ability to incorporate the implications of conservatism in earnings forecasts varies across security analysts. Accounting conservatism under certain scenarios may lead to stock mispricing.
Pae and Thornton (2010)	What is the impact of accounting conservatism on analysts' annual earnings forecast accuracy and dispersion?	US firms (1984–2002)	Financial analysts do not adjust their earnings forecasts for the implications of conditional conservatism.
Kim et al. (2012)	What is the impact of accounting conservatism on analysts' annual earnings forecast accuracy and dispersion?	US firms (1999–2007)	Analysts do not generally consider conservatism in their forecasts but more sophisticated analysts adjust their forecasts for the effect of conservatism.
Sohn (2012)	What is the impact of accounting conservatism on analysts' annual earnings forecast accuracy and dispersion?	US firms (1979–2008)	Analysts effectively impound conservatism into their earnings forecasts, and conservatism facilitates predicting earnings.
Garcia Lara, et al. (2014)	What are the information consequences of conservatism in accounting?	US firms (1977–2007)	An increase in conditional conservatism leads to more accurate and less dispersed analysts' forecasts and higher analyst coverage.

Table 4.3: Studies on the effects of conditional conservatism on earnings management

Author(s)	Research Question	Sample	Findings
Ball (2001)	What are the principal infrastructure requirements for an economically efficient system of public financial reporting?	Theoretical study	He theorizes that conditional accounting conservatism requires a higher degree of verification for gains and thus constrains managers' ability to opportunistically overstate earnings.
Chen et al. (2007)	What are the roles of conservative accounting standards in reducing incentives for earnings management?	Analytical study	An accounting conservatism system impedes earnings management by dampening managers' incentives to manipulate earnings
Gao (2013)	Does accounting conservatism limit managers' ex-post opportunistic influence on accounting measurement?	Analytical study	Conditional accounting rules discourage managers from engaging in earnings management by imposing additional costs to opportunistic earnings manipulation.
Bertomeu et al. (2017)	Does accounting conservatism alleviate agency problems?	Analytical study	Conditional conservatism encourages managers to engage in earnings management.
Caskey and Laux (2017)	How does board governance shape firms' financial reporting strategy and managers' incentives to manipulate accounting numbers?	Analytical study	A conservative system promotes board interventions, which in turn give managers incentives to deceive the board by manipulating earnings.
Garcia Lara, et al. (2020)	Does accounting conservatism curtail earnings management?	US firms (1990-2018)	Conditional conservatism reduces accrual-based earnings management.

Table 4.4: Studies on the effects of conditional conservatism on the cost of equity capital

Author(s)	Research Question	Sample	Findings
Francis et al. (2004)	How do earnings attributes affect the cost of equity capital?	US firms (1975-2001)	There is no significant association between conditional accounting conservatism and the cost of equity capital.
Chan et al. (2009)	What are the effects of conditional and unconditional accounting conservatism on the cost of equity capital?	UK firms (1987-1999)	There is a negative (positive) association between unconditional (conditional) conservatism and the cost of equity capital.
Garcia Lara et al. (2011)	How does conditional conservatism impact the cost of equity capital?	US firms (1975-2003)	Conditional conservatism reduces the cost of equity capital.
Li (2015)	How does conditional conservatism influence the cost of equity and the cost of debt?	International sample (1991-2007)	Conditional conservatism is negatively associated with the cost of equity capital as well as the cost of debt.
Biddle et al. (2017)	How does conditional conservatism impact the cost of equity capital?	US firms (1986-2008)	There is a positive association between conditional conservatism and the cost of equity capital.
Goh et al.(2017)	How does conditional conservatism influences a firm's choice between equity and debt?	US firms (1994-2010)	Conditional accounting conservatism reduces the cost of equity capital more than the cost of debt. Firms with more conditional conservatism use more equity than debt when they raise external financing.
Ramalingegowda and Yu (2018)	How does conditional conservatism influence capital structure adjustment?	US firms (1972-2011)	Conditional accounting conservatism generally facilitates access to finance and improves the speed of capital structure adjustment.

Table 4.5: Studies on the effects of conditional conservatism on investment efficiency

Author(s)	Research Question	Sample	Findings
Ball (2001)	What are the principal infrastructure requirements for an economically efficient system of public financial reporting?	Theoretical study	Under a conditional conservatism system, managers do not invest in negative net present value (NPV) projects or quickly abandon such projects and invest in positive NPV projects.
Francis and Martin (2010)	How conditional conservatism is associated with acquisition-investment decisions?	UK firms (1980–2006)	Firms with a high degree of conservatism make more profitable acquisitions, suggesting that firms pursue positive NPV projects. The likelihood of post-acquisition divestitures among firms with a high level of conservatism is low, and when these firms decide to divest, they do so very quickly
Bushman et al. (2011)	How country-level conditional conservatism does shape corporate investment behavior?	International setting (1995–2003)	A firm's investment is more sensitive to declining investment opportunities when country-level conditional accounting conservatism is high.
García Lara et al. (2016)	How conditional conservatism does influence firm investment efficiency?	US firms (1990–2007)	They find that conditional conservatism improves investment efficiency.
Balakrishnan et al. (2016)	How conditional conservatism does impact firms during the global financial crisis?	US firms (2007–2008)	Conditional conservatism reduces the negative impact of the financial crisis on corporate investment as conditional conservatism facilitates access to debt financing.
Hsu et al. (2017)	"Does accounting conservatism mitigate the shortcomings of CEO overconfidence?"	US firms (1992–2011)	Conditional conservatism helps overconfident CEOs to make better decisions.
Jung et al. (2017)	How accounting conservatism does play a disciplinary role in corporate layoffs?	US firms (2004-2012)	Conditional conservatism enhances corporate layoffs efficiency.
Ha and Feng (2018)	Does conditional conservatism improve labor investment efficiency?	US firms (1986–2014)	Conditional accounting conservatism improves labor investment efficiency.
Laux and Ray (2020)	How does accounting conservatism affect managers' incentive to engage in innovative projects and to make appropriate investment decisions?	Analytical study	The corporate board understands the implications of conditional conservatism and therefore they design the compensation contract in a way that encourages the CEO to invest in R&D projects.
Chen et al. (2021)	How does timely loss recognition influence firm performance through the feedback channel of price informativeness?	Analytical study	Timely loss recognition improves investment decisions via the stock price feedback channel.

Table 4.6: Studies on the effects of conditional conservatism on risk-taking

Author(s)	Research Question	Sample	Findings
Leuz (2001)	Comment and discussion on Ball (2001)	Theoretical study	Conditional conservatism may lead to underinvest as managers may refrain from engaging in long-term projects because they do not generate profit during their tenure.
Roychowdhury (2010)	Discussion of Francis and Martin (2010)	Theoretical study	While conditional conservatism impedes investment in negative NPV projects, it may also deter investment in risky projects with positive NPV.
Kravet (2014)	Does conditional conservatism curb corporate risk-taking?	US firms (1984–2006)	Conditional conservatism is negatively associated with the likelihood of making risky acquisitions.
Cedergren et al. (2015)	How is conditional conservatism related to acquisition profitability and risk?	US firms (1992–2010)	Conditional conservatism leads to less profitable as well as less risky acquisitions.
Chang et al. (2015)	What is the impact of conservatism on corporate innovation?	US firms (1976–2003)	Firms with more conditional conservatism generate fewer patents.
Ha (2020)	How conditional conservatism does influence bank loan portfolio quality?	US firms (1992–2011)	Conditional conservatism reduces bank's risk-taking in lending and leads to higher loan portfolio quality

Chapter 5. Conclusion, Limitations, and Directions for Future Research

The ongoing debate on accounting conservatism highlights the diverse views on the desirability of conservatism. Our lack of a full understanding of accounting conservatism may explain such diverse views. In fact, despite decades of research, there are still big questions that scholars have not sufficiently dealt with. This thesis contains three essays about conditional accounting conservatism. The primary object of this study is to help us to answer the following big research questions: What mechanisms reduce the need for conditional conservatism? What are the determinants of using conditional conservatism? Finally, what are the economic consequences of using conditional conservatism?

The first essay shows that an active options market reduces the demand for conditional conservatism. This study is one of few efforts to discover mechanisms that may reduce the need for conditional conservatism. The findings of this study carry important insights for policymakers and regulators by showing that the current trend in the development of the options market may, ceteris paribus, reduce the need for conditional accounting conservatism in the future. Moreover, this study adds to the literature on the effects of options trading on firms' outcomes.

The second essay contributes to the literature on the determinants of conditional conservatism. The findings of this study suggest that news from a peer firm influences accounting choice decisions. This study has implications for standard setters and regulators by showing that managers use more conditional accounting conservatism to improve their relations with capital providers in times of uncertainty. Additionally, this study contributes to the literature on the spillover effects of peer firm bankruptcy announcement by showing the effects of such news on firms' financial reporting strategies.

In the final essay, I review and summarize the literature that investigates the economic consequences of using conditional conservatism. More specifically, I review studies that examine how conditional conservatism influences debt contracting, information environments, cost of equity capital, and investment decisions. My survey reveals that the literature portrays a clear picture of the association between conditional conservatism and debt-contracting efficiency. However, the effects of conditional conservatism on information environments, cost of equity capital, and investment decisions are not clear. I highlight the potential sources of disparities between findings of prior studies. I also present research avenues for future studies.

As with any other study, this dissertation is subject to limitations. In the first essay, the association between options trading and conditional conservatism may be affected by omitted variables and reverse causality. In the second essay, the peer firm bankruptcy filings and financial reporting strategies of other firms in the same industry might be influenced by the industry conditions. To address these concerns, we use a battery of robustness tests, confirming our results. The third essay also focuses on areas of research that are overlooked by prior studies. Hence, it does not cover all documented consequences of conditional conservatism. In other words, the third essay complements and extends prior surveys on accounting conservatism.

Despite the above-mentioned limitations, the findings of this thesis contribute to the literature on accounting conservatism. These three essays also highlight numerous opportunities for future studies to extend our understanding of accounting conservatism. In the first essay, we show that how options trading, through its informational role, influences the demand for conditional conservatism. Future studies could explore how other recent development in financial markets (e.g., algorithmic trading; blockchain technology) may influence the demand for conservatism as well as processing conservative accounting information. In the second essay, we

show how a peer firm bankruptcy announcement influences conditional accounting conservatism. Future studies could examine how other peer firm news (e.g., product recall) may shape financial reporting strategies. Directions for future studies are also presented throughout the third essay.