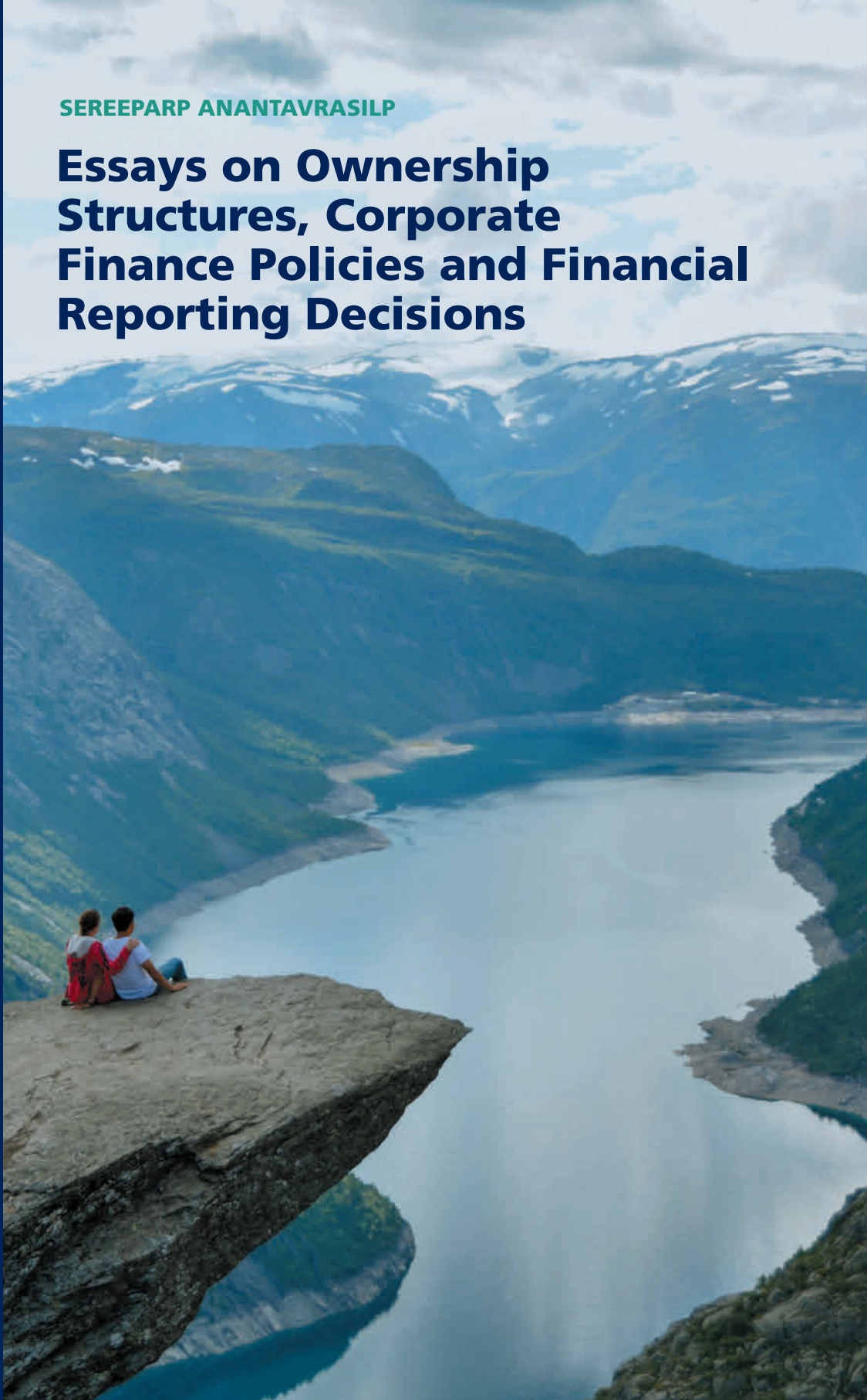
SEREEPARP ANANTAVRASILP

# Essays on Ownership Structures, Corporate Finance Policies and Financial Reporting Decisions



# Essays on Ownership Structures, Corporate Finance Policies and Financial Reporting Decisions

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en financiële verslaggeving

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## Preface

I do not really have the statistics but I am certain that mine is one of the more unconventional PhD stories. Not only did I work on it next to a demanding full-time corporate finance job, but I also stayed the course for more than a decade to see it through. Finishing this dissertation is an achievement that I will always be proud of. I have certainly learned a lot during this long journey and would like to take this opportunity to thank the people who have contributed – both directly and indirectly – to the completion of this PhD thesis.

First of all, I cannot thank my supervisor Abe de Jong enough for his tremendous guidance, support and especially patience during all these years. I am indebted to him also for his trust in me since my MPhil days. It is my involvement in his research project that really solidified my interest in academic research. He was also responsible for my external PhD arrangement and for connecting me with the other researchers whom I got to know and work with in my PhD trajectory. It would be an understatement to say that, without Abe, all of this would not have been possible.

I am also appreciative of the knowledge, help and cooperation from my co-authors – Prof. Uli Hege, Prof. Doug DeJong, Prof. Carel Huijgen and Prof. Martien Lubberink– as well as my promoter, Prof. Peter Roosenboom. The chance to work with you has truly been a valuable experience and certainly made me become a better researcher. I would also like to thank the members of my doctoral committee for their feedback and suggestions on this dissertation.

Next, I would like to thank the people at RSM Accounting & Control Department, especially Prof. Erik Peek, for having me there for a couple of months. I really appreciate your hospitality as well as interesting conversations during my all-too-brief stay. Special thanks go to Myra Lissenberg-van der Pennen for the great and attentive assistance through the years.

I am grateful to the EY S&T leadership, especially Jan van der Geest, for supporting my PhD ambition from the beginning and for making arrangements that enabled me to make the necessary progress towards the end of my dissertation. I also want to thank my colleagues for their interest in my research and the moral support that I needed at times (as well as for incessantly asking *the* question “When are you going to be finished?”).

It goes without saying that I could not have finished this thesis without the support of my family. I want to thank my father and mother for being a constant source of love and motivation, for instilling a strong sense of discipline in me and for making me the person that I am. I also want to thank my brother for his support and inspiration.

Working on this PhD on top of my full-time job has not been easy and has taken quite some personal sacrifice. Words cannot explain how much I appreciate Olia for her ever-present love, support and encouragement (and hugs) when I needed it the most. Her understanding as well as her company during some of the late night and weekend shifts really carried me through. Thanks for being my life partner that I cannot be without. Last but not least, I want to thank our baby daughter Masha, whose imminent arrival provided additional motivation and a sense of urgency in the final stretch of this long journey. You are barely months old but you have already filled my life with incredible joy, meaning and purpose.

Sereeparp Anantavrasilp
Rotterdam, January 2021

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# Chapter 1

# Introduction

The essays in this volume cover empirical analyses in three fields in finance and accounting – corporate governance, corporate finance and accounting conservatism – as well as the relationships between them. How does ownership structure affect firms' dividend policy? How could firms' financial reporting be influenced by their capital structure decisions? How does accounting conservatism compare internationally and what could explain the variations? These are some of the key questions that I seek to address in the following chapters. It is worth mentioning as well that the impact of the 2007-2008 global financial crisis is one important theme that runs through all three studies. This crisis started late in the previous decade and has since had profound influences, not only on the world economy, but also macroeconomic policies. Indeed, the effects that this event has on the behaviors of firms and blockholders will receive much attention in this thesis.

Based on financial and ownership data of French firms, the first essay focuses on the use of leverage in concentrated ownership structures and its effects on company policies (specifically dividend payouts). The link between corporate

governance and corporate finance is a relevant one, as evident in the recent press coverage (examples are provided in Chapter 2), but has not so far been explored in the existing literature. The study of corporate governance primarily concerns the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment (Shleifer and Vishny, 1997). The major cause of this conflict lies in the separation of control and ownership, which can create severe agency problems, hence making the structure of corporate ownership a prominent field within the corporate governance literature. Historically, much attention has been given to the analysis of economic control of dispersed ownership, in which controlling managers have the ability and incentives to extract private benefits at the expense of shareholders (Jensen and Meckling, 1976). This problem, however, has been found to be characteristic of only large corporations in Anglo-Saxon countries (La Porta, Lopez-de-Silanes and Shleifer, 1999). A much more common structure internationally is the concentrated ownership structure, in which a large shareholder owns a large block of shares. Because blockholders are able to exert influence on corporate decisions and enjoy the private benefits of control while retaining protection from the market for corporate control, the concentrated structure may also lead to a significant agency problem for minority shareholders (Shleifer and Vishny, 1997; Holderness, 2003). To this end, France should provide an ideal laboratory for the analysis of impact of blockholding leverage due to its concentrated corporate ownership characteristic, common use of private leverage in pyramidal holdings as well as availability of ownership data.

Two competing theories have been put forth to explain the impact of ownership concentration and dividend policy, i.e. the expropriation hypothesis and the substitution hypothesis. The first focuses on the asymmetry between dominant owners' cash flow and control rights and postulates that the payout of firms with concentrated ownership should be lower than that of widely-held companies. According to the latter view, signaling is more important, as dominant owners

would commit to a stable dividend payout to address market concerns over expropriation risks. This then results in higher equity value, which is considered to have a greater impact than the potential benefits from retained earnings. While there has been empirical work in this area, the evidence thus far has been inconclusive. Additionally, since dividends benefit shareholders but worsen liquidity positions for creditors, payout policies could create a conflict between the two capital providers and are especially relevant during difficult periods, such as the financial crisis. Therefore, the empirical results and insights provided in this thesis contribute to both strands of literature, particularly for firms under distress.

The latter two essays add to the literature on the demand for accounting conservatism and present the impact of capital structure decisions on firm reporting behaviors. Conservatism is a field that has gained considerable interest since the publication of the paper by Basu (1997). An excellent overview of theories and empirical evidence is provided in Watts (2003a and 2003b). It is important to note that the focus in this thesis is on the conditional form of conservatism. The rationale here is that, since conservatism predicts recognition of accounting losses on a more timely basis than gains, losses tend to me more contemporaneous with stock returns than gains. This type of conservatism is conditional in the sense that it depends on the information on the economic outcomes (or future cash flows) of the firm, i.e. book values are written down under bad circumstances but are not written up under good circumstances. Examples include lower of cost or market inventory accounting and impairment accounting. This notion of asymmetrical timeliness in gain and loss recognition is also reflected in the accounting of accruals, which is the key measure of conservatism in this volume. Gains tend to be more persistent than losses because unverifiable increases in asset values (gains) are not recognized at the time they occur but over future periods as actual cash flows are realized; losses on the other hand are recognized immediately leading to a lump sum drop in earnings. This

produces an asymmetry in accruals as losses are fully accrued while gains are not. Therefore, periodic and cumulative accruals tend to be negative, leading to negatively skewed distributions of accruals as immediate recognition of losses generate more large accruals than gains.

There are two main theories in the literature on the investors' demand for conservatism. The dominant one, namely the debtholder demand view, suggests that conservatism serves to increase debt contracting efficiency, as timely loss recognition plays a crucial role in triggering ex-post violations of debt contracts and therefore facilitates the transfer of control to the lenders following economic losses (Watts and Zimmerman, 1986; Watts, 1993, 2003a; Ball, 2001). The shareholder demand view, on the other hand, argues that conservatism is a governance mechanism that reduces managers' ability to manipulate financial performance for their own benefit and thus increases the firm's cash flows and value (LaFond and Watts, 2008). Taking into account the role of conservatism in debt contracting and governance, a study of firms' reporting behaviors becomes especially complex as well as relevant during the global financial crisis, which could asymmetrically affect the demands of debt and equity investors.

The conservatism analyses in this thesis contribute to the literature in three ways. First, by analyzing accounting choices companies make around important capital raising events, we provide additional empirical evidence to the role of debt and equity demand for conservatism. Second, we are the first to investigate how the financial crisis affects firms' reporting decisions. The last point relates to data. The studies of the US and international conservatism (in Chapter 3 and Chapter 4, respectively) are both based on a large datasets spanning more than 20 years. This enables us to examine not only the presence of conservatism but also its timing. Compared to the prominent comparative works by Ball et al. (2001) and Ball et al. (2008), the data underlying the research in this thesis are better in terms of coverage as well as quality.

## 1.1 Blockholder Leverage and Payout Policy

This chapter focuses on dominant owners' use of leverage to finance their blockholdings and its relationship to dividend policy. We chose to carry out our analysis in France for a number of reasons. First, it is well documented in corporate governance literature that French firms are characterized by a high concentration of ownership in the hands of families as well as a significant separation of ownership and control (La Porta, Lopez-de-Silanes and Shleifer, 1999; Faccio and Lang, 2002). Pyramids are prevalent and typically serve the purpose of organizing blockholdings in single-firm companies. Another unique feature of French corporate ownership is that it is not uncommon for blockholders to fund their stakes in public companies with debt. The French institutional framework also forms an ideal setting for this study. Since dual-class shares are prohibited and the double voting rights arrangement is not very flexible because of its time duration constraint, pyramids stand as the only reliable means of separation. Additionally, in terms of the significance in the capital markets, French holding companies make up a considerable portion of the country's major equity index, and are generally characterized by a complex ownership structure (Banerjee, Leleux and Vermaelen, 1997).

In our investigation, we focus on the link between blockholders' debt exposure and the dividend payout policy in times of crisis, when the need of the dominant owner for cash dividends to service debt may influence corporate decisions. We postulate that blockholder leverage may impact payout policy, in particular when earnings are hit by a negative shock. We use panel data for France where blockholders have tax incentives to structure their leverage in pyramidal holding companies and study the effect of the financial crisis in 2008/2009. We find no difference in payout policy and financial behavior during the 1999 to 2008 period between firms with levered owners and other firms. However, in the years

2009 to 2011 following the crisis, dividend payouts increase in proportion to pyramidal debt of dominant owners. We inspect pyramidal entities individually and find that on average only 60% of dividends are passed through to the ultimate owners, with the rest predominantly used to meet debt service obligations of the pyramidal entities.

## 1.2 Do firms anticipate security issues by conservative reporting?

In this chapter, we examine the importance of debtholders' and shareholders' concern for conservative accounting. We use the concept of conditional conservatism and study a firm's reporting behavior around important capital structure decisions, i.e. debt and equity issues. We employ a large sample of US debt and equity issues, which allows us to investigate the timing of conservatism. Our results show that firms issuing equity exhibit increasing conservatism in the period preceding the issue, driven by the demand of shareholders in the public markets. This finding is consistent with the notion that managers signal credibility to the market in an attempt to improve issue terms. The analysis provides no significant results for debt issues or private equity deals, therefore reducing the importance of the role of financial reports in debt contracting or as a governance mechanism.

## 1.3 International comparison of accounting conservatism

The final chapter stays on the topic of accounting conservatism, although the focus is on the international aspect of it. I first set out to investigate how the issuance of debt and equity affects the demand for conservative accounting in different countries. Using the Ball and Shivakumar (2005, 2006) asymmetrical timeliness model with an extensive dataset consisting of more than 540,000 firm-year observations in 45 countries during the period 1987 – 2015, I find variations in the

reporting quality of corporates around the world. Losses are generally recognized in accruals more timely than gains, especially in the more advanced economies, while companies in the developing countries exhibit less conservative reporting. When debt and equity issues are considered in the analysis, the results provide empirical support for the shareholders' demand view in a number of countries. Temporal effects are also observed, as companies reporting behavior (referring specifically to the asymmetrical timeliness of loss recognition) changes over time, especially around the financial crisis.

In the second part of the study, I assess the extent to which the aggregate conservatism observed in each economy can be explained by the institutional and market factors of the various countries. Based on the weighted least square method, the results indicate that conservatism is associated not only with the legal origin of the counties but also their institutional factors (in terms of protection of creditor rights as well as investor rights). With respect to the effect of shareholders' and debtholders' demand on conservatism, the country-level analysis shows only limited support for the debt market demand, in contrary to the main results of Ball et al. (2008).

## 1.4 Statement of contributions

This section describes my statement of contributions to the studies in this dissertation as well as my acknowledgement of the contributions of others.

*Chapter 1*: This is my own independent writing.

*Chapter 2*: The idea of studying of French pyramidal structures originated in the early 2000s and was developed by my three co-authors as well as another researcher, Gerard Mertens. I joined the research project during my ERIM Research Master in Business and Management (Finance track) and was primarily involved in reviewing the literature as well as the collection and programming of the data. My efforts culminated in my Master's thesis, 'Dissecting Stock

Pyramids: A Study on the Existence and Complexity of Pyramidal Ownership Structures in France', which described and empirically analyzed pyramidal ownership in France. Later on during my PhD years, I rejoined the project, at which point the direction of the research had changed thanks in no small part to the advent of the global financial crisis. Over the years, I was mainly responsible for data gathering, programming, coding of the variables, performing the analyses and interpreting the results. In addition, I also had a role in the discussions on the positioning of the paper as well as research design.

*Chapter 3*: This chapter is based on Anantavrasilp, S., M. J.P. Lubberink & C. Huijgen, 2020, 'Do firms anticipate security issues by conservative reporting?' In the initial version of this paper, my contributions were in the research design, data work and carrying out the regression analyses. The revision of the paper into its current form – which involved incorporating the impact of the global financial crisis, developing new hypotheses, extending the dataset, executing the analyses and updating the writing – is primarily my work.

*Chapter 4*: This chapter is built upon the main idea of Chapter 3, as I extended a similar approach to investigate the impact of debt and equity issues on conservatism in the United States to other countries in the first part of the paper. In any case, I developed the research and wrote the final chapter independently.

# Chapter 2

# Blockholder leverage and payout policies: Evidence from French Holding Companies[1]

## 2.1 Introduction

Blockholders sometimes use leverage to finance their dominant equity stake in publicly listed companies. This paper explores the use of private leverage by

[1] This chapter is based on Anantavrasilp, S., A. de Jong, D. DeJong & U. Hege, 2020, "Blockholder leverage and payout policy: Evidence from French holding companies," *Journal of Business Finance & Accounting*, 47, 253-292. We are grateful for helpful comments from Nittai Bergman, Eli Berkovitch, Henrik Cronqvist, Ingolf Dittmann, Edith Ginglinger, Ronen Israel, Meziane Lasfer, Erik Lie, Roni Michaely, Giovanna Nicodano, Urs Peyer, Kristian Rydqvist, T.J. Wong, and Yishay Yafeh and from an anonymous referee, as well as from seminar participants at Aalto, CUHK, ESMT, HEC Paris, IDC Herzliya, Tilburg University, and at various conferences. An earlier version (based on a different sample period prior to the global financial crisis) was circulating under the title 'Blockholders and Leverage: When Debt Leads to Higher Dividends'. The authors acknowledge excellent research assistance from Mounir Bendouch. Douglas DeJong thanks the Rotterdam School of Management, Erasmus University and CentER, Tilburg University for their support. Ulrich Hege thanks the European Research Council, ERC FP7 grant No. 312503 - SolSys, the ANR, grant ANR - 17 - EURE - 0010 under the Investissements d'Avenir program, and TSE - P for funding.

controlling shareholders and the effects of this leverage on company policies, dividends and investment. To the best of our knowledge, this question has not been addressed before.[2] The extensive literature on the role of blockholders implicitly assumes that owners use deep pockets to finance their controlling share blocks; blockholders, however, use debt financing for a number of reasons, such as wealth limitations or tax optimization.[3] The use of blockholder leverage, in hidden or transparent form, has recently come under scrutiny in a number of high-profile cases. For example, Casino, one of the largest French food retailers, was under attack by short sellers since 2018 over concerns about high leverage in its pyramidal holding companies, forcing it to sell assets and to seek limited bankruptcy protection in May 2019 (Financial Times, 31 July 2019). Other French groups also made headlines in recent years over blockholder leverage,[4] as did

[2] Dou, Masulis, and Zein (2019) show that insider share pledging may lead to reduced risk-taking.

[3] For example, according to court filings, Ronald S. Lauder, the owner of a large block in cosmetics and fashion group Estée Lauder Companies, uses debt apparently for tax motives: "Nearly $400 million of that stock [worth $600 million] is pledged to secure various lines of credit. Many financial planners consider it imprudent for principal shareholders in a company to borrow against their stock. But it remains a popular way for wealthy taxpayers to get cash out of their holdings without selling and paying taxes" (New York Times, Nov. 26, 2011).

[4] In August 2019, the controlling blockholder's shares in publishing and retail conglomerate Lagardère were reportedly worth less than the personal bank loans secured by them (Financial Times, 27 August 2019). When Carrefour, a large multinational retailer, experienced floundering sales in 2011, observers urged it to cut its dividend, but Nomura analysts cautioned: "Since Carrefour's core shareholders' (Blue Capital) investment in Carrefour is 80 percent debt financed, we question whether they can accept a sharp reduction in dividend." (Reuters November 17, 2011, http://www.reuters.com/article/2011/11/17/us-carrefour-analysis-idUSTRE7AG0M220111117). Telecom operator Altice, owner of Cablevision and other

companies in other jurisdictions including the U.S., even though the institutional context is often substantially different from that explored in our paper. [5]

In our investigation, we focus on the link between blockholders' debt exposure and the dividend payout policy in times of crisis, when the need of the dominant owner for cash dividends to service debt may influence corporate decisions. We find that, in difficult times, companies exposed to blockholder leverage are reluctant to cut dividends.

Data availability presents a major challenge given the privacy of information on personal debt, despite a renewed regulatory interest to understand the consequences of debt financing (Financial Stability Board, 2015). We focus on France because much of the leverage of large shareholders is in fact structured in holding vehicles. France's specific institutions and personal tax rules convey considerable advantages if levered owners organize their leverage in these holding companies. Tax costs of using holding companies are negligible, and tax rules discourage the use of pyramidal mixed companies that combine financial holdings with operating investments. Furthermore, holding companies are quite transparent, i.e., we observe ownership structure, financial structure and payout policy of privately-owned as well as publicly listed companies, including holding companies. Thus, while we cannot observe the use of private leverage

US assets, came under duress in 2017 over concerns about its leverage and the use of blockholder leverage by its founder.

[5] Examples include Steinhoff International of South Africa, engulfed in an accounting scandal in 2017 that led to a 90% share price drop and a fall in the value of the largest shareholder's equity to 25% of the blockholder loan; WorldCom whose CEO Bernie Ebbers had repeatedly used margin loans on his personal equity before the company collapsed in 2001; Portuguese bank Espirito Santo that similarly collapsed in 2014; and Chinese manufacturer Geely when it acquired a large equity block in Daimler-Benz in early 2018 on margin loans.

comprehensively, fiscal incentives and the relative transparency of holding vehicles provide a starting point to investigate its consequences. In France, a large majority of listed firms are controlled by dominant owners, as is the case in a majority of countries (e.g., LaPorta, Lopez-di-Silanes, Shleifer, 2000; this observation does not hold for the U.S., the UK, and certain other countries).

We begin by carefully mapping the use of pyramids and pyramidal leverage, our proxy for the use of private leverage by controlling blockholders. A majority of listed companies are characterized by shareholder concentration. We find that a majority of publicly listed companies are organized as pyramids. We show the phenomenon of pyramidal debt to be wide-spread: a majority of pyramidal holding companies use some (albeit moderate) leverage, and pyramids lead to a mean increase of the dominant owner's leverage exposure by 12.1% or 35.2%, depending on which of our two measures of pyramidal leverage is used. On the whole, we find that the use of pyramidal debt is wide-spread, but that blockholder leverage on average is moderate.

We then investigate the impact of blockholder leverage on dividend payouts. We do so in two steps. We first analyze dividend payouts in our panel by focusing on the cross-sectional comparison, controlling for all the usual variables that are known to influence payout, and then look at the shock of the financial crisis starting in 2008. In our first investigation, the cross-sectional panel study prior to the financial crisis, we find no difference in payouts between companies with levered blockholders and those without blockholder leverage. This finding may be due to the fact that French holding companies overall make a relatively conservative use of leverage, according to our data. From a strict econometric point of view, this finding offers reassurance that we are looking at similar sets of firms in the treatment and control sample when exploring the crisis impact. An important caveat is that controlling blockholders could also use other sources of personal income that we do not observe service to pay for holding company debt

or their consumption, and not just the dividends received from the companies they control (but we do not observe equity injections in holding companies that would indicate such substitution effects).

However, we find strong support for the hypothesis that blockholder leverage affects payout policy in difficult times. The 2008/2009 financial crisis was an exogenous shock affecting the global economy in almost all developed economies that led to severe cuts in dividend payouts in listed companies worldwide and also in France (David and Ginglinger, 2016). Crucially, however, the shock should affect companies differently according to the dominant blockholder's exposure to private blockholder leverage; we use this heterogeneous intensity of reaction to the treatment (the financial crisis) for our identification. We find that firms with pyramidal leverage maintain high dividend payouts even when cash flows are plummeting and peers are cutting their payouts.

To look for additional evidence on the causal link between blockholder leverage and the difference in crisis-induced payout behavior, we take a closer look at the flow of funds within pyramids for additional evidence that payout decisions are explained by pyramidal debt. Inspecting pyramids on an entity-by-entity basis, we find that the fraction of dividends consumed in each holding company and not passed on to the next entity increases strongly in our measures of the importance of debt service in that holding company. Dominant owners ultimately receive less than 60 percent of the cash that operating companies make available to them, a fraction that decreases strongly in our measures of pyramidal debt.

Finally, we consider the robustness of our finding and extensions. We analyze the consequences of blockholder leverage for the real policies of the company, but do not find that a dividend increase triggered in times of duress by a blockholder's leverage has a measurable effect on corporate investments or risk-taking. We also demonstrate the robustness when using more conservative

measures of pyramidal debt, explore Almeida and Wolfenzon's (2006) theory of dividend payouts in pyramids, and take into account double voting rights that in France may considerably enhance the discrepancy between voting and cash flow rights. None of these robustness checks alter our main findings.

To the best of our knowledge, our paper is the first to attempt to study the impact of the private leverage of dominant shareholders via holding company debt or similar vehicles. A similar issue arises when dominant owners use margin loans where the equity stake serves as collateral (also known as insider pledging of company stock), as our introductory examples show; unlike holding company debt, however, these loans are rarely observable to researchers. Our paper is related to various strands of the literature that we discuss in more detail in the next section. It is obviously related to the large literature on payout policy, in particular to work on payout policy in companies with dominant blockholders. This literature is characterized by two conflicting hypotheses, expropriation vs. substitution. Our paper adds to this literature with its analysis of the role of blockholders' private leverage. Our paper is also related to literature on payout policy and shareholder-bondholder conflicts, in particular for firms close to financial distress. Our paper contributes to this literature with the insight that the private leverage of blockholders may exacerbate shareholder-bondholder conflicts in times of financial distress. Finally, we contribute to the papers on financial structure and payout policy in pyramidal structures with the insight that blockholder leverage may be an important determinant of payout decisions in times of financial distress.

The chapter is organized as follows. Section 2 presents the literature and discusses our hypotheses. Section 3 describes the study's design and data. Section 4 outlines our main results. Section 5 presents further evidence on how dividends are passed through pyramidal entities. In Section 6, we look at various robustness tests and extensions, and Section 7 concludes.

## 2.2 Literature and Hypotheses

We briefly discuss the various strands of the literature to which our paper is related, on payout policy and blockholders, on shareholder-creditor conflicts under financial duress, and on pyramids.

Regarding the role of blockholders in corporate payout policy, existing work supports two contrasting views on the question whether the presence of large owners should lead to lower or to higher dividend payouts compared with widely held companies. The first view (sometimes referred to as the expropriation hypothesis) argues that the level of payouts is lower since the dominant shareholder gets only a fraction of the cash benefits compared with her exclusive benefits of control over retained earnings. This effect should increase in the discrepancy between control and cash flow rights (Burkart and Lee, 2008; Claessens et al., 2002; Adams and Ferreira, 2008). There is substantial evidence supporting this view (e.g., La Porta et al., 2000). In the alternative view, dominant owners commit to a stable dividend level in order to offset market doubts about expropriation risk. According to this view (dubbed the substitution hypothesis by La Porta et al., 2000), the positive stock market value effect dominates the potential benefits from retained earnings. Faccio, Lang, and Young (2001) present empirical evidence supporting this view. In light of these ambiguous hypotheses and tests, it seems fair to summarize that there is no dominant explanation on the impact of ownership concentration on payout policy.

Our paper is also related to the literature on payout policy and shareholder-creditor conflicts. According to standard capital structure arguments, dividend payments can be used to expropriate wealth from debt holders by increasing a firm's net debt and hence making its debt riskier (Allen and Michaely, 2003). DeAngelo and DeAngelo (1990) show empirical evidence that firms in financial distress are reluctant to cut dividends. Chu (2017) finds that firms reduce

dividend payouts when blockholders and important lenders internalize the negative value effects that dividend payouts create for lenders and, hence, mitigate shareholder-creditor conflicts.[6] Chu (2017) also finds that this mitigation is particularly pronounced when firms are in financial distress. Gilje (2016) presents evidence, using exogenous leverage shocks following commodity price jumps in the oil and gas industry, in particular, for purposes of identification, that firms with heightened shareholder - creditor conflicts following sudden leverage increases take less risk in their capex spending.

In spite of our focus on corporate holding companies, the relationship of our paper to the literature on pyramids is rather limited. In France, holding companies are typically private vehicles of blockholders with assets typically dominated by the equity stake in a single listed company; they exist for reasons mainly based on taxes (see the next section) that seem to suggest that the presence of a holding company can lead to higher dividend payouts.[7] By contrast, the literature on pyramids mainly focuses on diversified business groups or conglomerates organized under umbrella holding vehicles. For example, Almeida and Wolfenzon (2006) argue that diversified business groups organize capital accumulation through a listed holding company as a substitute for capital markets with frictions, and argue that listed companies in such pyramidal structures are

[6] See also Brockman and Unlu (2009) for international evidence.

[7] Holding companies can be used as a tax shelter shielding dividends from personal income tax. Given tax neutrality of pyramids (as is the case in France), pyramidal structures can then accommodate diverging dividend preferences: dividends can be paid to cater to dispersed shareholders, while dominant owner with lower cash preferences can avoid immediate taxation.

likely to have lower payouts and retained earnings funding investments in other business ventures.[8]

Besides the various strands of the literature discussed above, prominent general theories on capital structure and corporate payouts provide guidance when formulating hypotheses for our analysis of the payout consequences when dominant owners use private leverage to fund their equity stakes, in particular theoretical arguments on the role of debt to force companies to disgorge cash (e.g., Jensen, 1986) and the conflicts surrounding and consequences of financial distress (e.g., Myers, 1977). The dominant shareholder must assure the solvency of her holding vehicles, and she will use the dividend payout as a source of funding to service her debt. As long as the dividends paid by the operating company are sufficient to cover the owner's pyramidal debt, pyramidal debt should not affect payout policy. However, if the level of pyramidal debt is high, then we expect the dominant owner to push for higher dividends. While this effect should be present only for highly levered owners, we expect it be more widely observable in the case of an adverse financial shock to the operating company. Then, leveraged ownership creates a disparity between the dominant owner's use of cash and the needs of the company and other shareholders and potentially heightens shareholder-creditor conflicts. Therefore, we postulate that dividend payouts should increase in the use of pyramidal debt by dominant owners: Pyramidal debt

[8] There is relatively little prior work on payouts and capital structure in pyramids. Gopalan, Nanda, and Seru (2007) show that in Korean business groups dividends are used to finance investments in new subsidiaries. A small number of papers address the question how business groups allocate debt between parent firms and subsidiaries (Bianco and Nicodano, 2006; Luciano and Nicodano, 2014) from the perspective of the internal capital market of the group. Bertrand, Mehta, and Mullainathan (2002) document that in business groups wealth is transferred to controlling shareholders. None of these papers investigates the link between pyramidal debt and dividends.

has a positive effect on dividend payouts when operating company cash flow is hit by an adverse financial shock.

## 2.3 Holding Companies in France: Background, Methodology and Summary Statistics

### 2.3.1 Institutional Background on Holding Companies in France

France presents an ideal laboratory to investigate the role of pyramidal leverage in the relationship between large and small shareholders. France is a developed market, with the largest percentage of foreign stock ownership among the large European economies, and with a high degree of ownership concentration in listed firms. Structuring a large equity block in a holding vehicle, i.e. creating a pyramid, offers several potential benefits for blockholders but entails little administrative cost. As this institutional set-up suggests, pyramids are widely used and deeply embedded.

According to the tax regime that has essentially been stable since 1965, a holding company receives almost full tax credit for the corporate income tax paid by the operating company or a subordinate holding vehicle, meaning that pyramids in France are essentially tax neutral (so-called “régime des sociétés mères”). This corporate tax credit, however, is conditional on holding the share block for at least two years[9] and on holding at least 5% of the equity (10% until 2000); thus, only long-term investors that are significant shareholders benefit from the avoidance of double taxation. The tax credit is only approximately complete because the

[9] A declaration of intent to hold the shares for more than two years is considered sufficient. Breach of the declaration of intent through an earlier sale carries no other penalty besides back taxes. Thus, the tax neutrality of a new blockholder is in practice effective immediately and not after a two-year waiting period.

administration costs of a holding company remain taxable, at a level of the true administrative cost of the entity or 5% of its revenue, whichever is smaller. This creates a tax incentive to keep the true administrative costs of holding vehicles at a minimum and to structure them as pure financial holding entities unencumbered by any real assets or activities that would lead to higher administrative costs and a smaller tax credit. Thus, tax reasons can explain why holdings companies do not typically consist of a portfolio of equity blocks and operating assets as is the case in business groups that are prevalent in other countries.

Using a pyramid to structure an equity block offers several advantages in France. First, if the large shareholder has issued some debt, structuring the debt in a holding company allows the interest expense to be deducted against the dividend payouts that are subject to personal income taxes. Thus, the prevailing tax regime suggests that large share blocks financed with debt will be organized in pyramids. Second, pyramids decouple the decision of a listed operating company to pay dividends from the decision of a large blockholder to receive the dividend. That is, blockholders can use pyramidal holdings as a tax shelter; they will only incur the corresponding personal income tax on dividends when the dividends received by the holding company are later transferred to the ultimate owner. Therefore, since holding companies are neutral regarding corporate taxes, increasing the use of debt in a pyramid procures no tax savings, neither for personal nor corporate taxes.[10] Third, holdings are the only practicable way in France to engineer a disparity between voting and cash flow rights. For all practical purposes, dual class shares are not allowed. France allows double voting rights for long-term investors, but their role is different and their impact limited, as our robustness results for double

[10] That is, the same tax advantage can be achieved by simply sheltering dividends in holdings, without using debt. On the other hand, conditional on using personal debt, it is tax-efficient to structure it as pyramidal debt.

voting rights show (see Section 6.4). In addition, holding companies jointly held by multiple blockholders, such as family members, provide a vehicle for the multiple blockholders to vote as one block in corporate decisions.

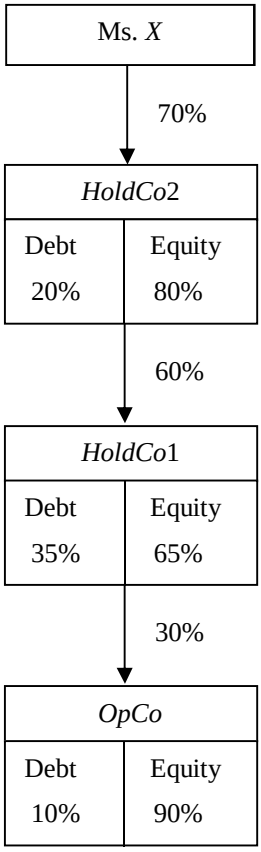
Finally, French regulations require all companies, public and private, to file their unconsolidated financial statements on an annual basis. French regulations also require all companies, public and private, to register their list of important shareholders and listed companies to disclose important changes in shareholdings and their holding structure.[11] Thus, the ownership structure, financial structure and payout policy of privately-owned as well as publicly-listed companies, including holding companies, are accessible.

### 2.3.2 Measures of Pyramidal Leverage and Control

In this section, we present a simple example to introduce our key variables for debt and control. Pyramids can be complex and France is no exception. Appendix A presents a full description of the design and algorithms that address cross-holdings and parallel ownership chains.

[11] Per French corporate laws, the following key thresholds give rise to discontinuous changes in control rights: 1) 33%: This level of control grants veto rights. It also triggers the mandatory bid rule, i.e. any owner passing through the 33% threshold is required to launch a full and unrestricted takeover offer; 2) 40%: Control is presumed if one shareholder has at least 40% of voting rights, directly or indirectly, and is the largest shareholder (according to article 355-1 of French securities law per Bloch and Kremp, 2001); 3) 50%: This level constitutes majority voting rights (or legal control) and triggers notification to the French authorities; 4) 67%: Reverse of the 33% rule, i.e. the ability to block any veto rights by other shareholders. This level is also the highest conditional takeover offer allowed under French law (restricted offers are not allowed in France).

**Figure 2.1: Stylized example**




Stylized example in which Ms. *X* holds a 70% equity stake in *HoldCo*2, *HoldCo*2 holds a 60% stake in *HoldCo*1, and *HoldCo*1 holds a 30% stake in *OpCo*. *HoldCo*2 is financed with 80% equity and 20% debt, *HoldCo*1 with 65% equity and 35% debt, and OpCo with 90% equity and 10% debt.

The Figure 2.1 example features an operating company, two holding companies and a dominant owner. All entities in the pyramid are vertically aligned, and the two holding companies have no other assets. Ms. X dominates the company OpCo by controlling 30% of its equity by means of two holding

companies: HoldCo1 owns 30% of OpCo; HoldCo2 owns 60% of HoldCo1; and Ms. X owns 70% of HoldCo2. Ms. X's cash flow rights are conventionally measured by the product 0.7 ·0.6 ·0.3 = 0.126, her claim on OpCo's dividends. In measuring control rights, we apply the same product rule but convert majority stakes, 0.6 and 0.7, to full control, i.e. 1.0. Thus, her control rights are 1.0 ·1.0 · 0.3 = 0.3. The measure of the disparity between control rights and cash flow rights that we call the control wedge is the ratio of control rights/cash flow rights, calculated as 0.3/0.126 = 2.38.

Our focus is on the dominant owner's exposure to leverage in the various entities of the pyramid. We use two measures to aggregate the leverage throughout the various entities of the pyramid. We explain the two measures using our example. HoldCo1 is financed with 35% debt and 65% equity and HoldCo2 is financed with 20% debt and 80% equity. OpCo itself is 10% debt-financed. We denote the leverage ratio in pyramidal entity k by lk, so that in our example l0 = 0.1, l1 = 0.35 and l2 = 0.2. In this setting, OpCo needs to pay a sufficient dividend so that HoldCo1 and HoldCo2 can service their debt. Ms. X's effective claim on OpCo's cash flows is reduced as a consequence.

Focusing on holding company debt, our first measure of pyramidal leverage, which we call average leverage, is just the mean leverage ratio of all the holding entities in the pyramid. In the example, we have an average leverage of (0.35 + 0.2)/2 = 0.275. More generally, if the pyramid consists of n holding companies, k = 1, 2, …, n, average leverage is defined as $\frac{1}{n}\sum_{k} l_k$ .

Our second measure, equivalent leverage, is motivated by the concern that average leverage may underestimate the dominant owner's true debt exposure. Such is the case when several levered holding companies are vertically superimposed on the operating company, as in our example. Ms. X's cash flow profile from her stake in OpCo is successively exposed to the leverage in the

pyramidal layers. Equivalent leverage determines the leverage ratio that would give Ms. X the same cash flow profile if she were to hold her stake in OpCo and her pyramidal debt in a single levered holding company. In our example, equivalent leverage is calculated as l0 + (1 - l0 )l1 + (1 - l0 )(1- l1)l2 = 0.1 + (1 - 0.1) · 0.35 + (1 - 0.1) · (1 - 0.35) · 0.2 = 0.532. [12] Thus, this computation aggregates Ms. X's full leverage exposure in the entire pyramid. More generally, if the pyramid consists of n vertically stacked holding companies, k = 1, 2, …, n, equivalent leverage is defined as l0 + (1 - l0) l1 + (1 - l0) (1 - l1)l2 + (1 - l0) (1 - l1) (1- l2)l3 + … + (1 - l0)(1 - l1) · …· (1- ln-1)ln. Equivalent leverage collapses the dominant owner's pyramidal leverage to a single leverage ratio, by hypothetically reallocating all debt in the pyramid to a single entity, the operating company (and assigning zero leverage to all holding companies), in such a way that the ultimate owner's effective exposure to leverage is measured equivalently to the actual combined leverage of the pyramid structure (or of the dominant chain of control in case of multiple chains).

We have missing information on the capital structure for 32.7% of the reported pyramidal holding companies, with a marked increase in the second half of the sample period, due to an increase in foreign-based holding companies and lower compliance. When calculating the values for the two measures of pyramidal debt, we assume that the leverage in a holding company in the pyramid corresponds to the average of the holding companies in the same pyramid when no

[12] For an intuition for the logic behind equivalent leverage, let $r_D$ be the cost of debt (assume $r_D$ is the same for all entities in the pyramid). If *OpCo* pays a dividend yield of $x$, then *HoldCo1* receives $0.3 \cdot x$ and, after paying interest, has earnings (ROE) of $0.3(x - l_1 r_D)$. If *HoldCo1* pays out all of its earnings as dividends, then *HoldCo2* receives $0.6*0.3(x - l_1 r_D)$ and, after paying interest, has earnings (ROE) of $0.6 \cdot 0.3(x - l_1 r_D - (1-l_1) l_2 r_D)$. If all of it is paid out, the dominant owner receives $0.7 \cdot 0.6 \cdot 0.3(x - l_1 r_D - (1- l_1) l_2 r_D)$, whereas she would receive $0.7 \cdot 0.6 \cdot 0.3 \cdot x$ if there was no pyramidal debt.

such data are available. Thus, our procedure ensures that the treatment of missing observations is neutral for our estimates of both leverage measures, average and equivalent.

### 2.3.3 Data and Variables

Our starting point is the set of all publicly listed companies on Euronext Paris as of December 31, 2012. Our initial sample includes firms from all three tiers of the Paris market, about 1,170 companies. We then impose the filter that each company be continuously included in the WorldScope database over the period 1999-2011. This criterion substantially reduces our sample; the final sample consists of 240 firms. We refer to each of these publicly listed companies as an operating company. Next, we collect the complete ownership information in every year for all holding companies, public and private. This information is available from the Dafsaliens database that also documents validation dates (Dafsaliens was set up by large French financial institutions to provide precise ownership information). Starting from the operating company, we use Dafsaliens to trace the ownership of the owners of the operating company and continue this process until we have traced the entire ownership structure to the dominant owners. We trace ownership across all ownership classes, individual/family, public company, unlisted private company and state..

In accordance with La Porta, Lopez-de-Silanes, and Shleifer (1999), Claessens, Djankov, and Lang (2000), Faccio and Lang (2002) and others, we require that a shareholder possess a substantial level of control (i.e. voting rights) in order to qualify as a dominant owner. The typical threshold used in the literature is 20%. To be consistent with the literature and allow comparisons with prior findings, we use the same 20% threshold in our baseline. In each operating company, we verify whether the largest ultimate owner exceeds this threshold. If no shareholder has a control right stake of 20% or more, the company is

considered as widely held. Otherwise, we identify the ultimate owner with the largest control right stake and we refer to this ultimate owner as the dominant owner.

We capture the discontinuous character of control rights by using concepts similar to those adopted in Almeida et al. (2011) and assume the dominant shareholder has absolute control over the operating company if she has a majority of votes. That is, we convert effective control rights of greater than 50% in any entity into full control of 100%. The other stakes are then allocated zero control rights. Again, more complex cases with several control chains are discussed in the Appendix A.

From the Diane database (the French component of Bureau van Dijk's Amadeus database), we collect the unconsolidated financial statements for private unlisted and for listed companies in the ownership chain for 1999 to 2011. The unconsolidated financial data provided by Diane eliminates the effect of group debt and focuses the analysis on the capital structure of the firm itself. For the sample of 240 operating companies, we use their consolidated financial statement information from WorldScope.[13]

The richness of the Dafsaliens and Diane information offers an important advantage over annual report-based data and company handbooks used in most previous works such as La Porta, Lopez-de-Silanes, and Shleifer (1999) and Faccio and Lang (2002), which cover only ownership information of public companies.

[13] If any of the 240 companies control subsidiaries, the net financial position of the subsidiaries and operating company is reflected in the operating company's consolidated financial information.

### 2.3.4 Firm Characteristics, Ownership Structure and Pyramids

Table 2.1 describes summary statistics of ownership structure and firm characteristics of the 240 French operating companies, yielding 2,880 observations in our 2000-2011 window (dropping 1999 as the regressions use lagged variables), of which 2,160 before the crisis and 720 after the outbreak of the crisis.[14] We find that in the pre-crisis period 2000-2008, only 26.1% of operating companies are widely-held, and 73.9% of the firms have a blockholder who satisfies the inclusion threshold of 20%. Moreover, in 44.9% of our pre-crisis sample, dominant shareholders use pyramids to control the operating company. This high frequency of pyramid-controlled firms, substantially higher than the 26% frequency that La Porta, Lopez-de-Silanes, and Shleifer (1999) and Faccio and Lang (2002) report for France, is explained by the inclusion of private holding companies. By contrast, earlier studies on pyramids in France classify firms as pyramids only if at least one of the holding companies in the pyramidal structure was a public company.[15] We find that only less than one quarter of pyramidal structures contain a public company (not reported in tables). While perhaps an inevitable restriction in cross-country studies, limiting the pyramid definition to only structures with listed holding entities leads to a substantial undercount of the use of pyramids in at least the case of France.

Dominant owners are classified by type in Table 2.1 (individual/family, firm, and state and others). Approximately forty-eight percent of operating

[14] In order to describe the longer term developments after the crisis, Table 2.1 also includes the 2012-2014 and 2015-2017 descriptives of the 720 firms in the post-crisis sample.

[15] La Porta, Lopez-de-Silanes, and Shleifer (1999); Faccio and Lang (2002); Ginglinger and Hamon (2012).

## Table 2.1: Summary statistics operating companies

| | | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | | Period 12-14 | Period 15-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Full sample | Widely held | Block owned pyramids | Block owned, no pyramids | Full sample | Widely held | Block owned pyramids | Block owned, no pyramids | Full sample | Full sample |
| ***Financials*** | | | | | | | | | | | |
| Dividend / Total assets | *mean* | 0.016 | 0.015 | 0.018 | 0.014 | 0.014 | 0.017 | 0.014 | 0.011 | 0.017 | 0.016 |
| | *median* | 0.010 | 0.011 | 0.010 | 0.009 | 0.008 | 0.010 | 0.008 | 0.007 | 0.010 | 0.010 |
| Dividend / Cash flows | *mean* | 0.179 | 0.188 | 0.194 | 0.147 | 0.193 | 0.209 | 0.198 | 0.161 | 0.226 | 0.198 |
| | *median* | 0.129 | 0.138 | 0.136 | 0.110 | 0.126 | 0.159 | 0.123 | 0.106 | 0.149 | 0.147 |
| *Ln*(Total assets) | *mean* | 6.045 | 6.623 | 6.113 | 5.429 | 6.513 | 6.791 | 6.766 | 5.633 | 6.633 | 6.852 |
| | *median* | 5.866 | 6.598 | 5.975 | 5.145 | 6.560 | 6.796 | 6.784 | 5.407 | 6.646 | 6.847 |
| Sales growth | *mean* | 0.144 | 0.162 | 0.116 | 0.170 | 0.020 | 0.030 | 0.004 | 0.035 | 0.112 | 0.025 |
| | *median* | 0.126 | 0.133 | 0.105 | 0.140 | 0.025 | 0.036 | 0.023 | 0.021 | 0.092 | 0.035 |
| Operational risk | *mean* | 0.039 | 0.045 | 0.034 | 0.040 | 0.043 | 0.044 | 0.037 | 0.052 | 0.036 | 0.030 |
| | *median* | 0.022 | 0.023 | 0.021 | 0.022 | 0.024 | 0.026 | 0.023 | 0.023 | 0.022 | 0.016 |
| Loss | *mean* | 0.151 | 0.197 | 0.129 | 0.144 | 0.247 | 0.260 | 0.240 | 0.241 | 0.150 | 0.142 |
| | *median* | - | - | - | - | - | - | - | - | - | - |
| Capex | *mean* | 0.311 | 0.333 | 0.291 | 0.325 | 0.252 | 0.276 | 0.239 | 0.239 | 0.239 | 0.256 |
| | *median* | 0.274 | 0.290 | 0.262 | 0.282 | 0.211 | 0.246 | 0.193 | 0.205 | 0.197 | 0.218 |
| Tobin's Q | *mean* | 1.503 | 1.651 | 1.447 | 1.458 | 1.219 | 1.268 | 1.133 | 1.297 | 1.222 | 1.318 |
| | *median* | 1.234 | 1.332 | 1.183 | 1.235 | 1.045 | 1.084 | 1.023 | 1.040 | 1.040 | 1.141 |
| Cash flow | *mean* | 0.078 | 0.075 | 0.079 | 0.077 | 0.058 | 0.055 | 0.058 | 0.063 | 0.072 | 0.067 |
| | *median* | 0.076 | 0.076 | 0.074 | 0.081 | 0.059 | 0.065 | 0.053 | 0.061 | 0.064 | 0.063 |
| ROA | *mean* | 0.047 | 0.046 | 0.050 | 0.044 | 0.035 | 0.032 | 0.033 | 0.041 | 0.043 | 0.040 |
| | *median* | 0.046 | 0.045 | 0.046 | 0.047 | 0.038 | 0.039 | 0.037 | 0.039 | 0.039 | 0.038 |
| Direct ownership | *mean* | 0.432 | - | 0.375 | 0.521 | 0.439 | - | 0.391 | 0.526 | | |
| | *median* | 0.399 | - | 0.328 | 0.510 | 0.399 | - | 0.341 | 0.531 | | |

| | | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | | Period 12-14 | Period 15-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Full sample | Widely held | Block owned pyramids | Block owned, no pyramids | Full sample | Widely held | Block owned pyramids | Block owned, no pyramids | Full sample | Full sample |
| Control wedge | *mean* | 1.764 | - | 2.070 | 1.291 | 1.977 | - | 2.337 | 1.327 | | |
| | *median* | 1.470 | - | 1.667 | 1.006 | 1.431 | - | 1.628 | 1.185 | | |
| ***Financial constraints, stock market liquidity, firm life cycle*** | | | | | | | | | | | |
| Interest coverage ratio | *mean* | 24.374 | 16.916 | 26.074 | 28.398 | 27.453 | 21.748 | 25.497 | 39.854 | 27.511 | 31.566 |
| | *median* | 5.459 | 5.850 | 4.702 | 6.261 | 5.018 | 4.879 | 4.656 | 6.107 | 6.215 | 7.659 |
| Leverage ratio | *mean* | 0.228 | 0.227 | 0.243 | 0.208 | 0.246 | 0.244 | 0.260 | 0.225 | 0.223 | 0.216 |
| | *median* | 0.216 | 0.207 | 0.234 | 0.197 | 0.228 | 0.216 | 0.243 | 0.216 | 0.205 | 0.205 |
| Net debt / EBITDA | *mean* | 1.999 | 2.130 | 2.129 | 1.675 | 2.358 | 2.354 | 2.696 | 1.750 | 2.313 | 2.081 |
| | *median* | 1.096 | 0.942 | 1.316 | 0.982 | 1.250 | 0.782 | 1.586 | 0.890 | 1.069 | 1.060 |
| Retained earnings/ | *mean* | 0.463 | 0.339 | 0.515 | 0.492 | 0.482 | 0.373 | 0.565 | 0.500 | 0.541 | 0.551 |
| Total equity | *median* | 0.562 | 0.459 | 0.610 | 0.604 | 0.640 | 0.534 | 0.677 | 0.699 | 0.676 | 0.678 |
| Annual share turnover | *mean* | 0.332 | 0.559 | 0.219 | 0.307 | 0.431 | 0.640 | 0.288 | 0.376 | 0.368 | 0.317 |
| | *median* | 0.111 | 0.271 | 0.086 | 0.083 | 0.166 | 0.348 | 0.095 | 0.125 | 0.148 | 0.147 |
| ***Ownership structure*** | | | | | | | | | | | |
| Type of control (percent of companies) | | 1.000 | 0.261 | 0.449 | 0.290 | 1.000 | 0.354 | 0.415 | 0.230 | | |
| ***Dominant owner*** | | | | | | | | | | | |
| Company | | 0.172 | - | 0.169 | 0.175 | 0.219 | - | 0.157 | 0.331 | | |
| Family | | 0.225 | - | 0.266 | 0.161 | 0.204 | - | 0.237 | 0.145 | | |
| Individual | | 0.256 | - | 0.278 | 0.222 | 0.288 | - | 0.343 | 0.187 | | |
| State & others | | 0.348 | - | 0.287 | 0.442 | 0.290 | - | 0.263 | 0.337 | | |
| ***Industry sector*** | | | | | | | | | | | |
| Energy & materials | | 0.088 | 0.092 | 0.076 | 0.100 | 0.088 | 0.075 | 0.087 | 0.108 | | |
| Industrials | | 0.208 | 0.210 | 0.189 | 0.238 | 0.208 | 0.220 | 0.200 | 0.205 | | |
| Consumer discretionary | | 0.213 | 0.144 | 0.222 | 0.260 | 0.213 | 0.157 | 0.240 | 0.247 | | |
| Consumer staples | | 0.113 | 0.099 | 0.133 | 0.093 | 0.113 | 0.071 | 0.130 | 0.145 | | |
| IT & Telecom | | 0.125 | 0.171 | 0.091 | 0.137 | 0.125 | 0.161 | 0.083 | 0.145 | | |
| Others | | 0.254 | 0.284 | 0.290 | 0.172 | 0.254 | 0.315 | 0.260 | 0.151 | | |
| # observations | | 2,160 | 563 | 970 | 627 | 720 | 254 | 300 | 166 | 720 | 720 |

This table presents the summary statistics of the full sample and the three subsamples according to type of control (widely-held firms, block-owned firms without pyramidal structures and block-owned firms with pyramidal structures), for the years 2000-2011. Presented are the mean and for continuous variables the median (in the row below).

The Financials are defined as follows. Dividend/total assets is defined as cash dividend over total assets. Dividends/cash flow is defined as cash dividend divided by net income plus depreciation. For both dividend measures the ratio is set to one when cash flows or earnings are negative and when the ratio exceeds one. The dividend variables are measured at $t+1$. Total assets is book value of total assets. Sales growth is the two-year growth rate of sales. Operational risk is the standard deviation of return on assets measured over five years ($t$-4 to $t$). The dummy variable Loss equals one when net income is negative and zero otherwise. Capex is capital expenditure, Tobin's Q is market capitalization divided by book value of assets, ROA is return on assets. Direct ownership is the proportion of common shares held by the dominant owner. The control wedge is the discrepancy between voting and cash flow rights, as described in Section 3.2.

The measures for financial constraints, stock market liquidity, firm life cycle are defined as follows. Interest coverage ratio = EBIT / Interest expense, similar to Hoshi et al. (1990). The leverage ratio is total (financial) debt over total assets, similar to Chu (2017). Annual share turnover = Annual volume / number of shares outstanding, where annual volume represents the cumulative daily trading volume over the calendar year and number of shares outstanding the number of common shares outstanding at fiscal-year end. Retained earnings/total equity is the aggregate of (cumulative) retained earnings as a proportion of total equity, similar to DeAngelo et al. (2006).

The variables in the categories Ownership structure, Dominant owner, and Industry sector are all dummy variables. The variable for dominant owner equals one if the dominant owner is respectively, an individual or family, another firm or the state. Six dummy variables describe the industry of the firm's main activities.

companies are controlled by either a family or an individual, roughly in line with earlier studies. Corporate owners comprise 17.2% of dominant owners in the pre-crisis sample.

Table 2.1 also provides an overview of key financial characteristics for the companies in our sample, broken down by type of control and owner, which allows us to see whether firms are comparable across ownership types. In terms of size, measured by total assets, widely-held firms are only slightly larger than firms with dominant owners, and they have about the same sales growth rate as block-owned firms, whereas companies in pyramids have slower growth. Widely held firms have somewhat higher operational risk and a higher frequency of loss years. Capex spending and Tobin's Q are comparable across all categories, as are cash flows and return on assets. Leverage is defined as total debt obligations, scaled by book value of total assets, with operating companies in pyramids having marginally higher ratios. Sales growth is the two-year growth rate of sales. We measure dividends relative to cash flow.[16] Relative to the full sample, operating companies with pyramidal ownership pay dividends comparable to those of widely-held firms, slightly above the full sample means, and blockholder-controlled firms without pyramids have lower dividend payouts. Comparing the average dividends before and after the crisis for blockholder and pyramidal ownership, Table 2.1 shows that the dividends scaled by firm size have decreased, while a large fraction of cash flows have been paid out. The frequency of loss firms and the level of operating risk are comparable across the crisis subsamples, with operating companies in pyramids slightly lower. Pyramidal blockholder-controlled firms are not different from other firms in terms of financial constraints

[16] We follow common practice and set payout ratios to unity when dividends are paid but cash flow are negative or less than the dividend (e.g. Megginson and Von Eije, 2008).

and their position in the firm life cycle (DeAngelo et al. (2006)'s variable retained earnings/equity), but their stock market liquidity is lower (unsurprisingly for concentrated ownership). The industry breakdown shows a wide mix of industries in the full sample as well as in the subsamples of block owner-controlled and pyramid-controlled operating companies. Overall, widely held firms, firms with blockowners, and firms with blockowners using pyramids are roughly comparable.

### 2.3.5 Summary Statistics of Pyramidal Leverage

In Table 2.2, we present summary statistics for pyramid-controlled operating firms (i.e., firms with a dominant blockholder exceeding 20% of ownership and a pyramidal structure), for the pre-crisis and the post-crisis periods, and an analysis of changes due to the onset of the crisis. We continue our analysis with a sample of 970 firm-years in block-owned pyramids, for which we calculate the control wedge as well as the two debt measures for the pyramidal structure. For this sample, 34.4% of holding companies on average have missing data, and the median holding company has no missing data.

We report an expansion of the summary statistics for the financial characteristics shown in Table 2.1 for pyramid-controlled operating firms, showing average, median, and standard deviation. Not surprisingly, sales growth, capex, Tobin's Q, cash flows all fall, and the frequency of losses rises substantially and significantly with the onset of the crisis. As a consequence, dividends as a fraction of total assets (our main measure) also fall, albeit with weak significance, but not dividends when scaled by cash flows. Table 2.2 also shows the dominant owner holds on average 37.5% of the equity (direct ownership) in the operating company (median: 32.8%). Pyramidal structures contain 2.64 layers on average with a median of 2. This measure includes the operating company as a layer. The control wedge with a pre-crisis mean of 2.07

**Table 2.2: Summary statistics of pyramid-controlled companies in the pre-crisis vs. post-crisis years**

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | | Test Pre-crisis vs. Post-crisis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs. | Mean | Median | Stdev | #obs. | *t*-test | sign rank test | # obs. |
| ***Financials*** | | | | | | | | | | | |
| Dividend / Total assets | 0.018 | 0.010 | 0.035 | 969 | 0.014 | 0.008 | 0.020 | 299 | 0.055 | 0.860 | 240 |
| Dividend / Cash flows | 0.194 | 0.136 | 0.224 | 929 | 0.198 | 0.123 | 0.260 | 285 | 0.417 | 0.032 | 240 |
| *Ln* (Total assets) | 6.113 | 5.975 | 2.114 | 970 | 6.766 | 6.784 | 2.094 | 300 | 0.000 | 0.000 | 240 |
| Sales growth | 0.116 | 0.105 | 0.304 | 892 | 0.004 | 0.023 | 0.281 | 289 | 0.000 | 0.000 | 240 |
| Operational risk | 0.034 | 0.021 | 0.038 | 970 | 0.037 | 0.023 | 0.042 | 300 | 0.253 | 0.189 | 240 |
| Loss | 0.129 | - | 0.335 | 970 | 0.240 | - | 0.428 | 300 | 0.000 | 0.000 | 240 |
| Capex | 0.291 | 0.262 | 0.251 | 852 | 0.239 | 0.193 | 0.239 | 273 | 0.000 | 0.000 | 240 |
| Tobin's Q | 1.447 | 1.183 | 0.902 | 965 | 1.133 | 1.023 | 0.367 | 300 | 0.000 | 0.000 | 240 |
| Cash flow | 0.079 | 0.074 | 0.094 | 970 | 0.058 | 0.053 | 0.074 | 300 | 0.000 | 0.000 | 240 |
| Direct ownership | 0.375 | 0.328 | 0.202 | 970 | 0.391 | 0.341 | 0.219 | 300 | 0.581 | 0.659 | 240 |
| Control wedge | 2.070 | 1.667 | 1.814 | 970 | 2.337 | 1.628 | 3.187 | 300 | 0.131 | 0.117 | 240 |
| Pyramidal Leverage (average) | 0.135 | 0.021 | 0.245 | 969 | 0.167 | 0.060 | 0.241 | 300 | 0.014 | 0.010 | 240 |
| Pyramidal Leverage (equivalent) | 0.396 | 0.367 | 0.300 | 969 | 0.450 | 0.414 | 0.298 | 300 | 0.002 | 0.007 | 240 |
| Number of layers | 2.640 | 2.000 | 1.446 | 970 | 2.827 | 2.000 | 1.620 | 300 | 0.024 | 0.262 | 240 |
| Proportion of missing entities | 0.359 | - | 0.437 | 970 | 0.295 | - | 0.413 | 300 | 0.041 | 0.413 | 240 |
| ***Financial constraints, stock market liquidity, firm life cycle*** | | | | | | | | | | | |
| Interest Coverage Ratio | 26.074 | 4.702 | 88.707 | 890 | 25.497 | 4.656 | 90.414 | 282 | 0.262 | 0.601 | 240 |
| Net debt / EBITDA | 2.129 | 1.316 | 2.854 | 874 | 2.696 | 1.586 | 3.569 | 258 | 0.002 | 0.000 | 240 |
| Leverage ratio | 0.243 | 0.234 | 0.176 | 970 | 0.260 | 0.243 | 0.181 | 300 | 0.024 | 0.052 | 240 |
| Annual share turnover | 0.219 | 0.086 | 0.383 | 970 | 0.288 | 0.095 | 0.437 | 299 | 0.000 | 0.002 | 240 |
| Retained earnings / Total equity | 0.515 | 0.610 | 0.403 | 930 | 0.565 | 0.677 | 0.397 | 284 | 0.674 | 0.000 | 240 |

This table provides summary statistics of pyramidal-owned companies and of their holding companies prior to the crisis, for the period 2000-2008. Pyramidal leverage (average) is the mean leverage ratio of all observed pyramidal entities in the pyramidal structure. *t*-test is a paired two-sided *t*-test, and signed rank test a Wilcoxon signed rank test. Pyramidal leverage (equivalent) is the aggregate leverage exposure of the ultimate owner through the bottom company and all pyramidal entities in the pyramidal structure (its calculation is explained in Section 3.2). The measures of pyramidal leverage, average leverage and equivalent leverage, assume that missing observation have the same capital structure as the observed entities in each pyramid. Number of layers expresses the longest chain of companies linking the ultimate owner to the operating company, incl. the operating company (so the number of holding companies between ultimate owner and operating company is number of layers – 1). Proportion of missing entities is the fraction of holding companies for which we do not observe the capital structure. All other variables, incl. variables for financial constraints and liquidity measures, are defined in Table 2.1.

(median: 1.667) measures the control-enhancing effect of pyramids as follows: considering only equity stakes in the pyramidal structure, dominant owners own 1.07 times more voting rights on average than they hold cash flow rights, and it changes little in the post-crisis period. Financial leverage increases with the crisis, both as the standard leverage ratio (financial debt/total assets), and when measured as Net debt/EBITDA.

Our two measures of pyramidal leverage consistently show that pyramidal debt is wide-spread in France, but moderate in size on average. In line with the leverage increase of the operating companies, we also find an increase from the pre-crisis to the post-crisis period. Average pyramidal leverage, which measures the mean debt-asset ratio in all holding companies across a pyramid, has a pre-crisis mean value of 13.5% (16.7% post-crisis) but a pre-crisis median value of only 2.1% (post-crisis 2.4%), reflecting a conservative capital structure. The dominant owner's total exposure to pyramidal leverage, however, is larger than indicated by average leverage if several holding companies are vertically stacked. This is the case in a large fraction of pyramidal firms (the average pre-crisis number of layers of holding companies is 1.64, after subtracting the operating company from the mean of 2.64 layers in total, increasing to 1.83 after the crisis). Equivalent pyramidal leverage, our second measure, transforms debt to an equivalent exposure, and provides a better view of the consolidated leverage exposure of the dominant owner throughout the bottom company and vertical chain of holding entities. The mean (median) pre-crisis equivalent leverage is 39.6% (36.7%), increasing to 45% (41.4%) post-crisis. In untabulated numbers, we find that 25% of the controlling owners of pyramidal firms have a pre-crisis equivalent pyramidal leverage measure of 57.9% or more. These numbers show the use of leverage in pyramids is significant for some pyramid-controlled firms in France. The distribution for our financial constraints, stock market liquidity and

firm life cycle variables among pyramidal firms does not reveal any striking patterns.

### 2.3.6 Stability of Pyramids and Pyramidal Debt

We investigate whether pyramids and pyramidal debt are persistent over time. We start by collecting the evidence on the time variations in the presence of dominant blockholders. If block ownership is endogenous it should dynamically adjust when the firm's conditions change.[17] We inspect the rate of change in block ownership by looking at the two-year changes and find that the ownership classification (widely held, block-non pyramid, block-pyramid) does not change from one year to the next for close to 90% of firms.

We also investigate whether pyramidal structures exhibit the same persistence that we find for the dominant owners and their blockholdings. We find that pyramids and their holding vehicles are stable over time. We draw a random sample of 100 holding companies and investigate the year they were founded. On average, the holding companies at the beginning of the sample period in 1999 are already more than 30 years old, less than 10% were founded in 1990 or later, and the oldest holding company was founded in 1865. The large number of companies controlled by families (54.9% of the pyramidal firms versus 37.7% for the non-pyramidal firms with a controlling blockholder, see Table 2.1) is one of the main drivers of the longstanding nature of the relationship between dominant blockholders and listed operating companies.

As a final verification, we consider the stability of pyramidal debt. While the leverage ratio of pyramidal entities fluctuates from one year to the next, we

[17] See e.g. Demsetz and Lehn (1985), Agrawal and Knoeber (1996), Cronqvist and Fahlenbrach (2009).

find that the debt exposure of firms with high pyramidal leverage compared to firms with little pyramidal leverage is persistent. To analyze the autocorrelation of pyramidal debt, we sort our sample of firms with pyramid control into quartiles according to their pyramidal leverage, using our two leverage measures. When analyzing the persistence of their position relative to all pyramidal firms, we find that, measured by equivalent leverage, 86% of firms remain in the same quartile of pyramidal leverage exposure from one year to the next (73% when we consider average leverage). This high persistence of firms' pyramidal debt exposure is useful for our identification strategy during the financial crisis.

### 2.3.7 Operating Company Debt and Pyramidal Debt

Finally, we explore the relationship between operating company debt and pyramidal debt. While there is no literature on the capital structure of holding companies with pyramidal debt, we do not expect pyramidal leverage and company leverage to be correlated in a predictable way.18 We investigate the correlation between operating company debt and pyramidal debt. We determine the correlation coefficients between the company leverage and our two measures of pyramidal debt (not tabulated in tables), and find no correlation of the company's leverage ratio with average leverage ($\rho$ = - 0.06) and a low but

[18] Standard arguments suggest that if operating company debt is optimized, optimal pyramidal debt should be zero if the dominant owner faces no wealth constraints. Wealth constraints or other motives for pyramidal debt, however, are not obviously correlated with operating company characteristics. Also, dominant owners in our sample are unlikely to self-select to companies according to their risk characteristics or leverage, considering that our blockholders are overwhelmingly families, corporations or government that typically cannot be dissociated from the company history. We cannot rule out that the decision whether to place debt in the operating company or in the pyramidal entities can make a difference for some types of ultimate owners.

reasonable positive correlation with equivalent leverage ($\rho = 0.36$), consistent with our findings for operating company leverage in Table 2.3, Panel B. This result holds also in untabulated regressions trying to explain the presence of pyramidal leverage, in particular when including variables that typically explain leverage, such as size, age, tangible assets or past profitability. To conclude, we are unable to explain the choice of pyramidal debt from observable company characteristics. That leaves only unobserved company characteristics, or characteristics of the dominant owners themselves and their choices, as possible determinants of an endogenous relationship between pyramidal debt and dividends.

## 2.4 Pyramidal Leverage and Payout Policy

### 2.4.1 Identification Strategy

Our main identification strategy relies on the crisis shock of the financial crisis of 2008/2009 as the basis for a difference-in-difference estimation with expected heterogeneous local average treatment effects, using methodology formally introduced by Imbens and Angrist (1994). The crisis was unexpected and pervasive but firms, when classified according to their exposure to pyramidal debt, are expected to differ in their likely dividend response according to their degree of exposure to pyramidal leverage. In other words, we exploit the fact that the shock (the treatment) incurred during the financial crisis varies according to the heterogeneous pyramidal leverage.

The fact that pyramidal holding companies and their debt levels are stable over time and exhibit a low correlation with company leverage or other company characteristics, is reassuring news from an econometric point of view: it allows us to view the blockholder's private leverage exposure as given and as quasi-randomly assigned (conditional on all controls that we include) when the crisis

arrives. Thus, the stickiness of pyramidal debt and the lack of correlation with operating company characteristics appear to validate our approach.[19]

### 2.4.2 Ownership Structure and Dividend Payouts Before and After the Crisis

Table 2.3 presents the regression analysis for the dividend policy for all firms over the entire sample period, 2000-2011. The purpose of this table is to investigate whether the type of ownership structure matters for payout policy, and whether the financial crisis of 2008 has an impact on this relationship. When analyzing the impact of the financial crisis, we take into account that the crisis had an effect on payout policy in France with a delay (David and Ginglinger, 2016), often attributed to the importance of automatic stabilizers; by some measures, the depth of the crisis was only reached in conjunction with the European sovereign debt crisis starting in 2010. Therefore, we consider that the full impact of the crisis was only felt in 2009 and sometimes even later. Indeed, dividends paid in Spring 2009 were still at relatively high levels. We define the dummy variable dPostCrisis that takes a value of one for the years 2009, 2010 and 2011 (company earnings in year t are reflected in dividends in year t+1, and hence dividends are measured in the following year). We focus on dividends scaled by total assets (Div/TA) as our dependent variable. Our main findings are robust when using alternative measures of dividend policy (see Table IA2.2 in the Internet Appendix).

Panel A of Table 2.3 shows in the first two lines that the dividend policy of pyramid-controlled firms does not significantly differ from that of widely held firms, whereas firms with blockholders but no pyramidal structure pay less

[19] The conditions of Imbens and Angrist (1994) for the validity of local average treatment effects (relevance, exclusion restriction, (conditional) random assignment, monotonicity) are satisfied.

## Table 2.3: Determinants of dividend payouts for all firms, 2000-2011

**Panel A: Baseline regressions**

| Variables | (1) Div / TA | (2) Div / TA | (3) Div / TA | (4) Div / TA | (5) Div / TA | (6) Div / TA |
|---|---|---|---|---|---|---|
| *d*Block-owned pyramid | -0.00152 | -0.00178 | -0.00200 | -0.00152 | -0.00178 | -0.00200 |
| | (0.00308) | (0.00326) | (0.00318) | (0.00307) | (0.00325) | (0.00317) |
| *d*Block-owned non-pyramid | -0.00552** | -0.00549** | -0.00586** | -0.00542** | -0.00539** | -0.00575** |
| | (0.00272) | (0.00273) | (0.00274) | (0.00267) | (0.00267) | (0.00268) |
| *d*Block-owned pyramid × *d*PostCrisis | 0.00571 | 0.00008 | 0.00037 | 0.00069 | 0.00024 | 0.00053 |
| | (0.00352) | (0.00340) | (0.00344) | (0.00357) | (0.00351) | (0.00353) |
| *d*Block-owned non-pyramid × *d*PostCrisis | 0.00158 | 0.00119 | 0.00146 | 0.00132 | 0.000957 | 0.00118 |
| | (0.00309) | (0.00294) | (0.00302) | (0.00300) | (0.00285) | (0.00293) |
| Leverage | -0.0204** | -0.0204** | -0.0197** | -0.0179 | -0.0181 | -0.0172 |
| | (0.00891) | (0.0101) | (0.00999) | (0.0109) | (0.0120) | (0.0119) |
| Leverage × *d*PostCrisis | | | | -0.00955 | -0.00902 | -0.00994 |
| | | | | (0.0101) | (0.0107) | (0.0108) |
| *Ln*(Total assets) | -0.00001 | 0.00002 | -0.00007 | -0.00007 | -0.00003 | --0.00005 |
| | (0.00050) | (0.00050) | (0.00052) | (0.00049) | (0.00049) | (0.00051) |
| Cash and equivalents | 0.00343 | 0.00243 | 0.00233 | 0.00339 | 0.00238 | 0.00227 |
| | (0.00738) | (0.00718) | (0.00713) | (0.00738) | (0.00717) | (0.00713) |
| *d*Loss | 0.00327 | 0.00456 | 0.00544 | 0.00349 | 0.00477 | 0.00567 |
| | (0.00387) | (0.00441) | (0.00459) | (0.00376) | (0.00429) | (0.00448) |
| Operating risk | 0.00126 | 0.0151 | 0.0217 | 0.00229 | 0.0162 | 0.0230 |
| | (0.0254) | (0.0305) | (0.0321) | (0.0256) | (0.0308) | (0.0324) |
| Sales growth | -0.00946** | -0.0101** | -0.00974* | -0.00948** | -0.0101** | -0.00971* |
| | (0.00473) | (0.00493) | (0.00498) | (0.00472) | (0.00490) | (0.00495) |
| Tobin's Q | 0.00965*** | 0.00868*** | 0.00841*** | 0.00969*** | 0.00872*** | 0.00844*** |
| | (0.00338) | (0.00320) | (0.00316) | (0.00340) | (0.00322) | (0.00318) |
| ROA | 0.0948*** | 0.104** | 0.113** | 0.0951*** | 0.104** | 0.113** |
| | (0.0345) | (0.0442) | (0.0463) | (0.0344) | (0.0443) | (0.0464) |
| Annual share turnover | -0.00005 | | 0.00096 | -0.00006 | | 0.00095 |
| | (0.000965) | | (0.00098) | (0.00096) | | (0.00097) |
| Retained earnings / Total equity | | 0.00448*** | 0.00467*** | | 0.00454*** | 0.00473*** |
| | | (0.00147) | (0.00151) | | (0.00149) | (0.00154) |
| Year and industry FE | Y | Y | Y | Y | Y | Y |
| Observations | 2,620 | 2,543 | 2,523 | 2,620 | 2,543 | 2,523 |
| R-squared | 0.244 | 0.241 | 0.247 | 0.245 | 0.241 | 0.247 |

**Panel B: Interaction with financial constraints variables in post-crisis period**

| Variables | (1) Div / TA | (2) Div / TA | (3) Div / TA | (4) Div / TA | (5) Div / TA | (6) Div / TA |
|---|---|---|---|---|---|---|
| Measure of financial constraint | Interest Coverage Ratio | | Net Debt / EBITDA | | Leverage Ratio | |
| *d*Block-owned pyramid | -0.00212 | -0.00207 | -0.00262 | -0.00261 | -0.00240 | -0.00238 |
| | (0.00275) | (0.00275) | (0.00295) | (0.00295) | (0.00286) | (0.00286) |
| *d*Block-owned non- | -0.00435 | -0.00429 | -0.00646** | -0.00646** | -0.00619** | -0.00618** |
| | (0.00265) | (0.00265) | (0.00280) | (0.00280) | (0.00262) | (0.00263) |
| *d*Block-owned pyramid × *d*PostCrisis | 0.00215 | 0.00129 | 0.00256 | 0.00228 | -0.000165 | 0.000636 |
| | (0.00320) | (0.00344) | (0.00367) | (0.00401) | (0.00337) | (0.00362) |
| *d*Block-owned non-pyramid × *d*PostCrisis | -0.000374 | -0.00119 | 0.000741 | 0.000489 | 0.00131 | 0.00210 |
| | (0.00273) | (0.00279) | (0.00305) | (0.00297) | (0.00288) | (0.00293) |
| Leverage | -0.0107 | -0.0105 | -0.0260 | -0.0262 | -0.0197 | -0.0199 |
| | (0.0120) | (0.0120) | (0.0161) | (0.0160) | (0.0168) | (0.0169) |
| Leverage × *d*PostCrisis | -0.00252 | 0.00243 | -0.00930 | -0.00684 | -0.0115 | -0.0211 |
| | (0.0115) | (0.0132) | (0.0153) | (0.0190) | (0.0149) | (0.0185) |
| *d*Loss | 0.00198 | 0.00237 | 0.00357 | 0.00361 | 0.00560 | 0.00555 |
| | (0.00354) | (0.00359) | (0.00381) | (0.00380) | (0.00443) | (0.00443) |
| Annual share turnover | 0.000901 | 0.000860 | 0.00188* | 0.00187* | 0.000922 | 0.00102 |
| | (0.000954) | (0.000955) | (0.00105) | (0.00106) | (0.000993) | (0.00101) |
| Retained earnings / Total equity | 0.00453*** | 0.00448*** | 0.00455** | 0.00456** | | |
| | (0.00128) | (0.00129) | (0.00177) | (0.00176) | | |
| Financial Constraint | 0.00004 | 0.00004 | 0.000995** | 0.00101*** | 0.0048*** | 0.0048*** |
| | (0.00003) | (0.00003) | (0.000380) | (0.000382) | (0.00152) | (0.00152) |
| *d*Constraint × *d*Block-owned pyramid | -0.000697 | -0.000871 | 0.00129 | 0.00125 | 0.00153 | 0.00156 |
| | (0.00187) | (0.00189) | (0.00348) | (0.00350) | (0.00402) | (0.00403) |
| *d*Constraint × *d*Block-owned non-pyramid | -0.00141 | -0.00163 | 0.00248 | 0.00245 | 0.00177 | 0.00176 |
| | (0.00215) | (0.00213) | (0.00415) | (0.00414) | (0.00406) | (0.00406) |
| *d*Constraint × *d*Block-owned pyramid × | -0.00225 | 0.000414 | -0.00507 | -0.00412 | 0.00218 | -0.00114 |
| | (0.00305) | (0.00413) | (0.00371) | (0.00513) | (0.00425) | (0.00523) |
| *d*Constraint × *d*Block-owned non-pyramid × | 0.00232 | 0.00467 | 0.000551 | 0.00143 | -0.000611 | -0.00379 |
| | (0.00299) | (0.00348) | (0.00452) | (0.00483) | (0.00527) | (0.00572) |
| *d*Constraint × Leverage × *d*PostCrisis | | -0.00961 | | -0.00381 | | 0.0135 |
| | | (0.00783) | | (0.0121) | | (0.0110) |
| Additional control | Y | Y | Y | Y | Y | Y |
| Year and industry FE | Y | Y | Y | Y | Y | Y |
| Observations | 2,338 | 2,338 | 2,237 | 2,237 | 2,523 | 2,523 |
| R-squared | 0.183 | 0.184 | 0.280 | 0.280 | 0.248 | 0.248 |

This table shows regressions explaining the dividend payouts by the operating company for all firms. The independent variable is Dividends over Total assets of the listed operating company. The dummy variable *d*Block-owned pyramid is equal to one if the company has a blockholder (control of 20% of more of shares in the operating company) and if the company's ownership structure contains at least one holding company. The dummy variable *d*Block-owned non-pyramid is equal to one if the company has a blockholder (control of 20% of more of shares in the operating company) but no pyramidal holding company.

The dummy *d*PostCrisis is equal to one for the years 2009-2011. If the capital structure of a pyramidal entity is unknown, its value is replaced by the average of all the holdings in the same pyramid (in both measures of pyramidal leverage).

In Panel B, three variables of exposure to financial distress are added and their interactions with *d*Block-owned pyramid, *d*Block-owned-no pyramid and *d*PostCrisis are reported. In columns (1) and (2), the measure for financial distress is the interest coverage ratio; in columns (3) and (4), the measure for financial distress is Net debt/EBITDA, and in columns (5) and (6), the measure for financial distress is the Leverage ratio (Total (financial) debt over Total assets). In addition to the variables of Panel A, the triple interaction terms *d*Constraint × *d*Block-owned pyramid × dPostCrisis and *d*Constraint × *d*Block-owned non- pyramid × *d*PostCrisis are included. Six industry dummies and year dummies are always included. Panel B includes the same set of variables as Panel A and hence, in addition to the reported variables, the following control variables: *Ln*(Total assets), Cash and cash equivalents, Operating risk, and Sales Growth. Since we include year dummies, the dummy variable *d*PostCrisis for the three post-crisis years 2009-2001 is not included and only appears in the interaction terms. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 1 and 2 for all variable definitions.

dividends, consistent with the expropriation hypothesis of LaPorta et al. (2000) (the prefix d denotes dummy variables in this and the following tables). When we

Panel A of Table 2.3 shows in the first two lines that the dividend policy of pyramid-controlled firms does not significantly differ from that of widely held firms, whereas firms with blockholders but no pyramidal structure pay less dividends, consistent with the expropriation hypothesis of LaPorta et al. (2000) (the prefix d denotes dummy variables in this and the following tables). When we interact the dPostCrisis dummy with our variables for the presence of blockowners or pyramids, we find that the dividend policy does not change between the pre-crisis and the post-crisis period for the three ownership structures. This means that companies with concentrated shareholdings or holding companies adjust their

dividend policies in reaction to the crisis in exactly the same way as do widely held companies.[20]

We also consider whether there is a different dividend reaction to the crisis event for firms exposed to financial distress. In Panel B of Table 2.3, we use three different measures of financial constraints: the interest coverage ratio used in Chu (2017), the leverage ratio used in Hoshi, Kashyap and Scharfstein (1990), as well as the variable net debt/EBITDA. We define firms to be in financial distress if they belong to the most exposed quartile of sample firms for each of the financial constraint measures (bottom quartile for the interest coverage ratio, and top quartile for leverage ratio and net debt/EBITDA). The results are reported in Table 2.3, Panel B. Our focus is again on pyramidal firms with a blockholder. We find that the triple interaction variable dConstraint × dBlock-owned pyramid × dPostCrisis, our measure of the post-crisis impact of the presence of financial constraints, is not significant for any of our three financial constraint variables; we conclude that pyramidal block ownership per se does not lead to a different adjustment in dividend payouts after the crisis, even for firms that show signs of financial distress.

To complete the discussion, the regressions in Table 2.3 (Panel A and B) confirm that dividend policy depends on other variables: unsurprisingly, firms with higher Tobin's Q and higher profitability (ROA) pay higher dividends, and firms with higher sales growth pay less dividends. We also confirm DeAngelo et al. (2006)'s finding that dividends increase for firms capable of financing equity from retained earnings rather than raised capital when including their suggested life cycle variable retained earnings/total equity. Dividend payouts do not depend

[20] The regression include year and industry fixed effects, so the dummy *d*PostCrisis as a primitive term would be redundant and hence is not included.

on our measure of stock market liquidity (we report results using Banerjee et al. (2007)'s first liquidity measure of annual stock turnover), or other control variables included in the regression. Company leverage is not significant when we control for post-crisis leverage (regressions (4) to (6)). Though not shown, the regressions in the two tables load the same on our industry categories.

### 2.4.3 Pyramidal Debt and Dividend Payouts Before and After the Crisis

We consider the impact of pyramidal debt on payout policies in Table 2.4, presenting our main result that companies relying heavily on pyramidal debt maintain substantial dividend payment levels after the crisis. We are particularly interested in the question whether the crisis, as measured by the dummy variable dPostCrisis, had an impact on the relationship between pyramidal debt and dividend policy. Since we want to take a closer look at the financial structure of the holding companies in pyramids, this table limits the attention to pyramid-controlled operating firms, in contrast to Table 2.3 that looks at all firms. We show results for our two measures of pyramidal leverage, average leverage (regressions (1) to (3)) and equivalent leverage (regressions (4) to (6)). Table 2.4, Panel A, documents that pyramidal debt per se, whether measured by average or equivalent leverage, has no clearly significant effect for the dividend policy of the operating company. The coefficient is slightly negative, but essentially insignificant (with significance at the 10% level in only one out of six regressions). In these as in all following regressions, we assume that the leverage in holding entities for which we do not observe financial information is the same as for the observed entities of the same companies (see Table 2.7 for the robustness when altering this assumption).

Our identification exploits the fact that there should be a predictable heterogeneous response to the crisis shock according to the exposure to pyramidal

## Table 2.4: Determinants of dividend payouts for pyramid-controlled firms

**Panel A: Baseline regressions**

| | Pyramidal leverage | | | Pyramidal leverage (equivalent) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Variables | Div / TA | Div / TA | Div / TA | Div / TA | Div / TA | Div / TA |
| Pyramidal Leverage | -0.00748* | -0.00664 | -0.00665 | -0.00490 | -0.00347 | -0.00348 |
| | (0.00440) | (0.00468) | (0.00468) | (0.00553) | (0.00564) | (0.00570) |
| Pyramidal Leverage × *d*PostCrisis | 0.0146** | 0.0156** | 0.0155** | 0.0111* | 0.0116* | 0.0115* |
| | (0.00716) | (0.00733) | (0.00725) | (0.00659) | (0.00656) | (0.00656) |
| Leverage | -0.0304*** | -0.0321*** | -0.0321*** | -0.0265*** | -0.0291** | -0.0291** |
| | (0.00901) | (0.0104) | (0.0103) | (0.0102) | (0.0113) | (0.0112) |
| Leverage × *d*PostCrisis | -0.00666 | -0.00370 | -0.00356 | -0.0149 | -0.0120 | -0.0119 |
| | (0.0129) | (0.0150) | (0.0152) | (0.0151) | (0.0172) | (0.0174) |
| *Ln*(Total assets) | 0.000769 | 0.000871 | 0.000868 | 0.000745 | 0.000847 | 0.000843 |
| | (0.000640) | (0.000573) | (0.000613) | (0.000637) | (0.000570) | (0.000611) |
| Cash and equivalents | 0.00131 | -0.000252 | -0.000266 | 0.00193 | 0.000694 | 0.000659 |
| | (0.00929) | (0.00923) | (0.00921) | (0.00922) | (0.00913) | (0.00911) |
| *d*Loss | 0.00857* | 0.0104* | 0.0104* | 0.00853* | 0.0104* | 0.0105* |
| | (0.00454) | (0.00544) | (0.00554) | (0.00464) | (0.00558) | (0.00569) |
| Operating risk | 0.0601 | 0.0615 | 0.0611 | 0.0584 | 0.0593 | 0.0591 |
| | (0.0438) | (0.0483) | (0.0488) | (0.0433) | (0.0478) | (0.0484) |
| Sales growth | -0.00145 | -0.00166 | -0.00166 | -0.00113 | -0.00133 | -0.00134 |
| | (0.00335) | (0.00348) | (0.00348) | (0.00342) | (0.00355) | (0.00356) |
| Control wedge | -0.00058** | -0.00055* | -0.00055** | -0.00055 | -0.00057* | -0.00057* |
| | (0.00026) | (0.00028) | (0.00027) | (0.00034) | (0.00034) | (0.00033) |
| Tobin's Q | 0.00821** | 0.00642** | 0.00641** | 0.00814** | 0.00631** | 0.00631** |
| | (0.00347) | (0.00298) | (0.00298) | (0.00346) | (0.00298) | (0.00298) |
| ROA | 0.135** | 0.159** | 0.159** | 0.134** | 0.159* | 0.159* |
| | (0.0589) | (0.0802) | (0.0802) | (0.0597) | (0.0812) | (0.0812) |
| Annual share turnover | -0.00126 | | 0.000139 | -0.00128 | | 0.000110 |
| | (0.00201) | | (0.00207) | (0.00210) | | (0.00215) |
| Ret. earnings/Total equity | | 0.000362 | 0.000401 | | 0.000545 | 0.000565 |
| | | (0.00305) | (0.00311) | | (0.00300) | (0.00306) |
| Year and industry FE | Y | Y | Y | Y | Y | Y |
| Observations | 1,172 | 1,121 | 1,120 | 1,172 | 1,121 | 1,120 |
| R-squared | 0.325 | 0.319 | 0.318 | 0.323 | 0.317 | 0.317 |

**Panel B: Interaction of pyramidal leverage and operating company financial constraints**

| | Pyramidal leverage (average) | | | Pyramidal leverage (equivalent) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Variables | Div / TA | Div / TA | Div / TA | Div / TA | Div / TA | Div / TA |
| Pyramidal Leverage | -0.00341 | -0.00646 | -0.00665 | -0.00398 | -0.00275 | -0.00357 |
| | (0.00370) | (0.00437) | (0.00469) | (0.00433) | (0.00551) | (0.00569) |
| Pyramidal Leverage × *d*PostCrisis | 0.00845* | 0.0209** | 0.0160* | 0.0111** | 0.0148** | 0.00989 |
| | (0.00511) | (0.00978) | (0.00820) | (0.00523) | (0.00732) | (0.00622) |
| Leverage | -0.0218*** | -0.0346*** | -0.0321*** | -0.0187*** | -0.0323** | -0.0291** |
| | (0.00754) | (0.0127) | (0.0103) | (0.00647) | (0.0137) | (0.0112) |
| Leverage × *d*PostCrisis | -0.00294 | -0.00356 | -0.00272 | -0.00786 | -0.0105 | -0.0198 |
| | (0.0133) | (0.0170) | (0.0162) | (0.0145) | (0.0216) | (0.0236) |
| Interest Coverage Ratio | 0.00007 | | | 0.00007 | | |
| | (0.00005) | | | (0.00005) | | |
| *d*Interest Coverage Ratio × Pyramidal Lev. | -0.00469 | | | -0.00472 | | |
| | (0.00824) | | | (0.00532) | | |
| Net Debt/EBITDA | | 0.00098* | | | 0.00103* | |
| | | (0.00056) | | | (0.00055) | |
| *d*(Net Debt/EBITDA) × Pyramidal Lev. × | | -0.0190** | | | -0.00910** | |
| | | (0.00886) | | | (0.00457) | |
| *d*Leverage × Pyramidal Lev. × *d*PostCrisis | | | -0.00221 | | | 0.00680 |
| | | | (0.00911) | | | (0.00725) |
| *d*Loss | 0.00627 | 0.00874** | 0.0104* | 0.00645 | 0.00885** | 0.0103* |
| | (0.00417) | (0.00432) | (0.00558) | (0.00418) | (0.00440) | (0.00577) |
| Control wedge | -0.00058** | -0.00064** | -0.00055** | -0.00062** | -0.00075** | -0.00055* |
| | (0.00026) | (0.00029) | (0.00027) | (0.00027) | (0.00034) | (0.00032) |
| Tobin's Q | 0.00130 | 0.00567* | 0.00640** | 0.00131 | 0.00558* | 0.00633** |
| | (0.00215) | (0.00302) | (0.00298) | (0.00215) | (0.00302) | (0.00299) |
| ROA | 0.0962* | 0.234*** | 0.159** | 0.0947* | 0.234*** | 0.158* |
| | (0.0553) | (0.0880) | (0.0804) | (0.0559) | (0.0887) | (0.0816) |
| Annual share turnover | 0.00128 | 0.000764 | 0.000117 | 0.00127 | 0.000719 | 0.000281 |
| | (0.00179) | (0.00250) | (0.00209) | (0.00182) | (0.00260) | (0.00225) |
| Ret. earnings/Total | 0.00102 | -0.00026 | 0.00036 | 0.00096 | 0.00021 | 0.00072 |
| | (0.00210) | (0.00322) | (0.00315) | (0.00212) | (0.00313) | (0.00311) |
| Additional control | Y | Y | Y | Y | Y | Y |
| Year and industry FE | Y | Y | Y | Y | Y | Y |
| Observations | 1,042 | 1,006 | 1,120 | 1,042 | 1,006 | 1,120 |
| R-squared | 0.296 | 0.386 | 0.318 | 0.298 | 0.384 | 0.317 |

Table 2.4 shows regressions explaining the dividend payouts by the operating company for firms controlled by a pyramid. The independent variable is Dividends over Total assets of the listed operating company. Pyramidal leverage is measured by average leverage in equations (1) to (3), and equivalent leverage in equations (4) to (6) of each panel. Both panels include an identical set of control variables. Panel A reports the full set of control variables except for the six industry dummies (not shown). Panel B includes the same set of variables and hence, in addition to the reported variables, the following control variables: *Ln*(Total assets), Cash and cash equivalents, Operating risk, and Sales growth. If the capital structure of a pyramidal entity is unknown, its value is replaced by the average of all the holdings in the same pyramid (in both measures of pyramidal leverage). Six industry dummies and year dummies are always included. Since we include year dummies, the dummy variable *d*PostCrisis for the three post-crisis years 2009-2001 is not included and only appears in the interaction terms. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 2.1 and 2.2 for all variable definitions.

leverage. While the shock affects all firms, the dividend response to the shock should be more mitigated for firms with blockholders exposed to pyramidal leverage. Our approach is a difference-in-difference estimation of this differential response to the crisis shock, measured by the interaction term between dPostCrisis and our two measures of pyramidal leverage. The interaction term Pyramidal leverage × dPostCrisis in Table 2.4, Panel A, is our main variable of interest.

We find a uniformly significant positive relationship between the interaction term Pyramidal leverage × dPostCrisis in Panel A of Table 2.4 and dividend policy in all specifications, with significance at the 5% level in 3 out of 6 specifications, and at 10% in the three remaining equations. This is the main answer to our research question; it says that, in order for dominant owners to be able to service their private debts, companies with levered blockholders are willing to maintain dividends in reaction to the crisis. For the interpretation, it should be kept in mind that the financial crisis hit France with a delay.

We also consider whether the post-crisis dividend adjustment is different for firms exposed to financial distress. In Table 2.4, Panel B, we report the results when we interact the variable of interest Pyramidal leverage × dPostCrisis with our three variables of financial distress, Interest coverage ratio, Leverage ratio and Net debt/EBITDA. The triple interaction coefficient is negative as we would

expect (meaning that firms more likely exposed to financial distress concerns are less likely to maintain pre-crisis levels of dividends) but it is significantly negative only for Net debt/EBITDA. Crucially, our main variable of interest Pyramidal leverage × dPostCrisis remains positive and significant, meaning that companies with leveraged blockholder cut their dividends by a significantly smaller amount compared with other firms even when we explicitly include financial distress.

As a robustness check, we repeat all regressions in Tables 2.3 and 2.4 with three-year lagged ownership measures instead of the one-year lagged ownership measures that we use in all regressions reported in these tables. The results (not reported in tables) are robust to this two-year lag.[21] The stability of the ownership structure and these extended lags imply that endogeneity of this variable is not likely to induce biased estimates.

## 2.5 Anatomy of Dividend Pass-Through in Pyramidal Structure

For additional evidence on the transmission mechanism, we disaggregate and investigate information for the flow of funds within pyramids. We inspect directly the financial situation of each holding company, in particular its capital structure and dividends. We consider specifically the utilization of the dividends that each entity receives, and in particular focus on the fraction passed on to the next layer in the pyramidal chain. Following our hypothesis, we postulate that this fraction decreases in the entity's debt. Thus, the fraction of dividends that is ultimately passed on to the beneficial owner should decrease in the pyramidal debt exposure.

Specifically, we investigate the behavior and determinants of the dividend pass-through, the dividends ultimately received by the dominant shareholder as a

[21] In a few instances the significance of the results becomes weak; this is a consequence of the loss of power in our tests because we cannot use the first two years of our panel.

fraction of the operating company's dividends made available to him. Formally, by dividend pass-through of the dominant owner, we refer to the fraction of the dividends that the operating company makes available to the dominant shareholder (through direct and indirect ownership links) that the dominant owner actually receives. Thus, this fraction excludes the part of dividends absorbed somewhere in the pyramidal chain.

Table 2.5 shows summary statistics for the holding companies of pyramid-controlled companies, encompassing all holding companies for which we observe financial information. We base our analysis on this sample (we present the statistics for the smaller subsample of holding entities and associated operating companies for which we have complete financial information on all holding entities in the pyramid in the Internet Appendix, Tables IA2.3 and IA2.4). Again, we show values for the pre-crisis and post-crisis period separately. Panel A presents the summary statistics for all holding companies with observable financial information. Total assets and the investment ratio (the fraction of the holding entity's assets that consists of its stake in the listed operating company) of the holding companies remain stable between the pre-crisis and post-crisis period, but debt and interest expenses rise whereas dividends received fall, measured as a fraction of total assets, albeit mostly not significantly, indicating the potential for heightened tension in the ability to service pyramidal debt. Indeed, the last two lines of Panel A show a precipitous fall in the mean coverage of interest obligations through dividend receipts: when we express dividends received as a fraction of the proportional debt service obligation of the holding entity (interest expense × investment ratio), we find that the fraction decreases by 43% from the pre-crisis to the post-crisis period in our preferred version where outliers are capped (investment ratio capped between 0 and 1, last line), and by 61% in the raw data. However, this coverage ratio remains at relatively comfortable median

## Table 2.5: Summary statistics pyramid-owned companies and holding companies

**Panel A: Summary statistics for all holding companies per period**

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | | Tests pre-crisis v. post-crisis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs | *t*-test | sign rank test | #obs. |
| Dividends received / Total assets | 0.046 | 0.011 | 0.092 | 1 205 | 0.036 | 0.008 | 0.061 | 476 | 0.117 | 0.336 | 69 |
| Interest expense / Total assets | 0.012 | 0.007 | 0.017 | 1 186 | 0.015 | 0.006 | 0.042 | 434 | 0.262 | 0.595 | 64 |
| Total debt / Total assets | 0.191 | 0.099 | 0.220 | 1 182 | 0.209 | 0.128 | 0.229 | 432 | 0.099 | 0.145 | 64 |
| LT debt / Total assets | 0.158 | 0.017 | 0.215 | 1 182 | 0.208 | 0.124 | 0.228 | 432 | 0.001 | 0.002 | 64 |
| Cash / Total assets | 0.079 | 0.014 | 0.131 | 1 212 | 0.065 | 0.007 | 0.131 | 435 | 0.792 | 0.640 | 65 |
| Investment ratio | 1.049 | 0.635 | 1.453 | 1 049 | 1.092 | 0.767 | 1.394 | 396 | 0.585 | 0.060 | 59 |
| Investment ratio, capped between 0 and 1 | 0.594 | 0.666 | 0.393 | 1 097 | 0.615 | 0.763 | 0.400 | 409 | 0.273 | 0.280 | 60 |
| *Ln* (Total assets) | 5.623 | 5.295 | 2.522 | 1 207 | 5.679 | 5.248 | 2.388 | 434 | 0.000 | 0.000 | 64 |
| *d*Next is Ultimate Owner | 0.513 | 1.000 | 0.500 | 2 596 | 0.469 | - | 0.499 | 868 | 0.008 | 0.021 | 84 |
| Ownership stake | 0.607 | 0.533 | 0.278 | 2 596 | 0.634 | 0.557 | 0.282 | 868 | 0.360 | 0.062 | 84 |
| Div. received / (Interest exp. × Investment ratio) | 82.84 | 2.75 | 317.56 | 956 | 32.294 | 3.492 | 164.95 | 338 | 0.647 | 0.240 | 49 |
| Div. received / (Interest expense × Investment ratio capped between 0 and 1) | 91.59 | 3.091 | 323.72 | 932 | 52.386 | 3.725 | 238.72 | 332 | 0.794 | 0.219 | 47 |

**Panel B: Summary statistics of all holding companies, pre- and post-crisis, with sample split by leverage ratio (Total debt / Total assets)**

*Observations with leverage ratio in the top quartile*

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| Dividends received / Total assets | 0.033 | 0.008 | 0.084 | 256 | 0.033 | 0.016 | 0.040 | 92 |
| Interest expense / Total assets | 0.024 | 0.023 | 0.015 | 292 | 0.031 | 0.024 | 0.069 | 108 |
| Total debt / Total assets | 0.523 | 0.507 | 0.122 | 296 | 0.540 | 0.526 | 0.122 | 108 |
| LT debt / Total assets | 0.458 | 0.477 | 0.196 | 296 | 0.538 | 0.522 | 0.124 | 108 |
| Cash / Total assets | 0.067 | 0.017 | 0.096 | 296 | 0.048 | 0.010 | 0.096 | 108 |
| Investment ratio | 0.562 | 0.325 | 0.724 | 264 | 0.735 | 0.663 | 0.630 | 99 |
| Investment ratio, capped between 0 and 1 | 0.436 | 0.325 | 0.353 | 276 | 0.583 | 0.642 | 0.376 | 103 |
| *Ln*(Total assets) | 6.850 | 6.970 | 2.134 | 296 | 6.754 | 6.839 | 2.305 | 107 |
| *d*Next is Ultimate Owner | 0.402 | - | 0.491 | 296 | 0.435 | - | 0.498 | 108 |
| Ownership stake | 0.701 | 0.669 | 0.290 | 296 | 0.688 | 0.675 | 0.278 | 108 |
| Div. received / (Interest exp. × Investment ratio) | 5.458 | 1.284 | 29.054 | 236 | 7.824 | 1.488 | 26.933 | 85 |
| Div. received / (Interest expense × Investment ratio capped between 0 and 1) | 9.031 | 1.566 | 34.440 | 232 | 8.392 | 2.061 | 27.348 | 82 |

*Observations with leverage ratio in the three bottom quartiles*

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| Dividends received / Total assets | 0.051 | 0.016 | 0.089 | 762 | 0.036 | 0.007 | 0.062 | 287 |
| Interest expense / Total assets | 0.008 | 0.003 | 0.016 | 874 | 0.009 | 0.002 | 0.024 | 323 |
| Total debt / Total assets | 0.080 | 0.018 | 0.102 | 886 | 0.098 | 0.011 | 0.127 | 324 |
| LT debt / Total assets | 0.057 | 0.000 | 0.094 | 886 | 0.098 | 0.009 | 0.126 | 324 |
| Cash / Total assets | 0.079 | 0.014 | 0.133 | 886 | 0.072 | 0.005 | 0.141 | 324 |
| Investment ratio | 1.156 | 0.786 | 1.440 | 763 | 1.201 | 0.789 | 1.553 | 294 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Investment ratio, capped between 0 and 1 | 0.642 | 0.818 | 0.393 | 796 | 0.622 | 0.805 | 0.407 | 303 |
| *Ln*(Total assets) | 5.274 | 5.033 | 2.500 | 882 | 5.336 | 5.114 | 2.320 | 324 |
| *d*Next is Ultimate Owner | 0.616 | 1.000 | 0.487 | 886 | 0.497 | - | 0.501 | 324 |
| Ownership stake | 0.547 | 0.511 | 0.266 | 886 | 0.552 | 0.511 | 0.269 | 324 |
| Div. received / (Interest exp. × Investment ratio) | 111.283 | 4.964 | 357.186 | 573 | 42.780 | 4.396 | 207.594 | 189 |
| Div. received / (Interest expense × Investment ratio capped between 0 and 1) | 113.672 | 5.374 | 346.443 | 558 | 77.240 | 4.401 | 308.130 | 186 |

This table provides summary statistics of pyramidal-owned companies and of their holding companies prior to the crisis, for the entire sample period, but only for companies with complete observation of the capital structure of all holding companies in the pyramid. The measures of pyramidal leverage, average leverage and equivalent leverage, assume that missing observation have the same capital structure as the observed entities in each pyramid. Investment ratio is the part of all asset of a holding company that is constituted by the ultimate owners' equity stake in the pyramidal entity directly below, or in the listed operating company if the listed operating company is placed immediately below the holding entity (investment ratios are lagged by one period, and capped within the interval [0, 1]). Dividends received is the amount of dividends received by the holding entity (in euros). Dividends Received/Total assets is dividends received, divided by the total assets of the holding entity. See Tables 2.1 and 2.2 for the definitions of all other variables. In Panel A, the column *t*-test reports paired two sided *t*-tests of differences between the mean of the 2000-2008 period and of the 2009-2011 period. The column sign rank test is a Wilcoxon signed rank test of differences between the median of the 2000-2008 period and of the 2009-2011 period. To include an observation in the test, we require that there be at least 4 observations in the pre-crisis period (2000 - 2008) and at least 2 observations in the post-crisis period (2009 - 2011), explaining the low observation count and power of the tests for differences.

levels of 3 (mean above 30) even after the crisis. Thus, we expect tensions to be concentrated among companies at the top end of pyramidal debt.

Indeed, the picture changes when we split the sample to focus on companies with the highest pyramidal leverage exposure. In Panel B, we consider the top quartile of pyramidal holding companies by leverage (financial debt/total assets) separately from the rest of the sample. We find that the coverage ratio dividends received/(interest expense × investment ratio) is much lower for highly levered firms, at median levels between 1.28 and 1.56 before the crisis (mean levels above 5). This indicates a clear potential for tensions for the most levered blockholders. Remarkably, it remains stable or even increases (in the raw data) with the arrival of the crisis, in strong contrast to the rest of the sample of moderately levered pyramidal holding companies where the coverage ratio is much higher and falls with the crisis. We find similar differences when we split the sample by other measures of pyramidal leverage (not reported in tables).

Table 2.6 considers the determinants of dividend pass-through. Panel A presents summary statistics, separate for the pre-crisis years 2000-2008 and the post-crisis period starting in 2009. It shows that the mean (median) of the dividend pass-through in our sample is 59.6% (66.4%), i.e. ultimate owners receive on average less than 60% of the dividends made available to them. This proportion increases to 70.7% on average (median: 83.4%) after the financial shock arrives, perhaps indicating that the ultimate owners have additional cash needs after the crisis that are not captured by the pyramidal debt in our sample, but the difference is not significant.

Panel B presents the regression results. The dependent variable is the dividend pass-through to the ultimate owner as a fraction of the dividends made available to him. Our variable of interest is the measure of pyramidal leverage (average leverage in regressions (1) and (3) and equivalent leverage in regressions (2) and (4)), either as a contemporaneous measure (regressions (1) and (2)) or as a

## Table 2.6: Determinants of dividend passed through to dominant owners, based on pyramidal leverage

**Panel A: Summary statistics of dividend pass-through**

| | Pre-crisis (2000-2008) | | | Post-crisis (2009 -2011) | | |
|---|---|---|---|---|---|---|
| | Mean | Median | # obs | Mean | Median | # obs |
| Dividend pass-through (DivPassThrough) | 0.5959 | 0.6636 | 527 | 0.7073 | 0.8338 | 146 |
| Pyramid leverage (average), lagged | 0.1217 | 0.0029 | 527 | 0.1300 | 0.0012 | 146 |
| Pyramid leverage (equivalent), lagged | 0.3794 | 0.3684 | 527 | 0.4071 | 0.3640 | 146 |
| Number of layers | 2.4573 | 2.0000 | 527 | 2.6370 | 2.0000 | 146 |
| Proportion missing entities | 0.3060 | 0.0000 | 527 | 0.3279 | 0.0000 | 146 |

**Panel B: Regression analysis of dividend pass-through**

| | Pyramidal leverage *not* lagged | | Pyramidal leverage lagged | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | DivPassThrough | DivPassThrough | DivPassThrough | DivPassThrough |
| Number of layers | -0.0710*** | -0.0614*** | -0.0767*** | -0.0636*** |
| | (0.0117) | (0.0126) | (0.0108) | (0.0147) |
| Pyramid leverage (average) | -0.346** | | -0.283 | |
| | (0.162) | | (0.179) | |
| Pyramidal leverage (equivalent) | | -0.278*** | | -0.267*** |
| | | (0.0880) | | (0.0984) |
| Pyramid leverage (average) × *d*PostCrisis | 0.00794 | | -0.130 | |
| | (0.207) | | (0.216) | |
| Pyramidal leverage (equivalent) × *d*PostCrisis | | 0.196 | | 0.101 |
| | | (0.122) | | (0.120) |
| Observations | 872 | 872 | 673 | 673 |
| R-squared | 0.145 | 0.143 | 0.173 | 0.174 |

This table analyzes the fraction of the dividends that the ultimate owner in a pyramid-controlled company receives through the pyramidal structure, as a function of the combined debt service obligation of the pyramidal layer(s). DivPassThrough (or dividend passed through) is the fraction of the dividends that the operating company makes available to the dominant owner that is eventually received by the dominant owner, i.e. dividends received by the dominant owner / (dominant owner's combined ownership in the operating company × dividend paid by operating company). The measure of pyramidal leverage of the pyramid of holding companies is average leverage in equation (1) and (3), and equivalent leverage in equations (2) and (4). If the capital structure of a pyramidal entity is unknown, its value is replaced by the average of all the holdings in the same pyramid. If the capital structure of none of the holding companies can be observed, pyramidal leverage is assumed to be zero (in both measures of pyramidal leverage). Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 2.1 and 2.2 for other variable definitions.

lagged measure (regressions (3) and (4)). We focus on the number of pyramidal layers and one of our two pyramidal leverage measures. In the pre-crisis period, both measures of pyramidal leverage are significantly negative: a smaller fraction of dividends received is passed through to the ultimate owner if the pyramid is indebted (as a substantial part of dividends received by intermediate entities are used to service the debt). When we use lagged pyramidal leverage terms (in regressions (3) and (4)) to be more certain about the direction of causality, we find the same result.

To gauge the impact of the crisis shock, we consider the interaction terms of pyramidal debt with the dummy dPostCrisis. Since Table 2.4 shows that dividends are increasing in pyramidal leverage, we expect that dividend policy may remain the same and hence the relationship between pass-through and pyramidal leverage may remain constant. Indeed, we find that the interacted terms are not significant, meaning that the adjustment does not come at the ultimate owner's expense; ultimate owners seem to be able to receive payouts that are uncorrelated with their pyramidal debt exposure.

Overall, our anatomy of the pass-through of dividends demonstrates that ultimate owners receive on average only 60% of the dividends that the operating company makes available to them, using the remainder mostly for debt service payments along the pyramidal chain. These relationships hold in normal times. The fact that the pass-through does not vary with pyramidal debt after the financial crisis shock appears to be consistent with our earlier results in Table 2.4: if companies do not cut their dividends because they cater to the needs for cash of the dominant owner's pyramidal leverage, then the use of those unchanged dividends in the pyramid should not change, either. This finding is also consistent with the hypothesis that pyramidal debt reinforces the pressure on operating companies to increases their payout ratios when hit by adverse shocks.

## 2.6 Extensions and Robustness

### 2.6.1 Real Effects of Blockholder Leverage Under Duress

When companies with levered owners increase dividends during times of financial duress, negative real effects such as a cut in investments could be the consequence. We investigate whether pyramidal debt has such a negative impact on investments. We look at the full sample, and we also look at the subsample of pyramid-controlled firm, where we focus on the impact of pyramidal leverage, before and after the financial crisis. We find that neither before nor after the crisis is there any significant change in investment that can be attributed to pyramidal leverage. We do not tabulate these results, but include representative regressions in the Internet Appendix (Table IA2.1).

Also in untabulated regressions, we investigate the determinants of various measures of operational risk. We use the standard deviation of ROA, beta, and the standard deviation and semi-deviation of market return, all measured over a rolling 5-year window (t-4 to t0). While one of our four measures, the volatility of ROA, shows some association with pyramidal debt in the pre-crisis period, none of the four measures of operational risk shows any change as a function of pyramidal debt under the shock from the financial crisis. Our findings for investments and risk appear to be consistent: overall, pyramidal leverage is probably too conservative, and the effect leading to higher dividends too small to lead to a measurable reduction in investment or change in risk.

### 2.6.2 Alternative Measures for Pyramidal Debt

We have no capital structure information for 34.4% of the reported pyramidal holding companies, posing a challenge for the construction of our measures of pyramidal debt. We investigate the robustness of our results when using the most conservative assumption available for the capital structure of those holding entities

with missing information. We now assume that, when calculating the values for the two measures of pyramidal debt, there is zero debt in a holding company in the pyramid when such data is not available, thereby presenting conservative estimates for our two leverage measures, average and equivalent. By contrast, in our main analysis, we assume that the leverage of those holding companies with missing capital structure observation corresponds to the average of the holding companies in the same pyramid when no such data is available.

Tables 2.7 and 2.8 present the results, reproducing our estimates of the dividend model (Table 2.4) and the dividend pass-through (Table 2.6). Importantly, the significance of the variables of interest, the interacted terms with the post-crisis dummy, and the explanatory power of the regressions are robust to this use of the most conservative measure of pyramidal leverage.

### 2.6.3 Alternative Explanations for Dividend Levels in Pyramids

Regarding alternative explanations, we consider first Almeida and Wolfenzon's (2006) theory stipulating that pyramids are used to create new businesses from retained earnings, thereby taking minority investors hostage in the interest of capital accumulation. Inspecting the asset base of holding companies, we find that on average the investment in the company one layer below comprises 60% of the total assets of the pyramidal entity (see Table 2.5, Panel A). With the stake in the company below constituting over half of a typical holding company's assets, it is unlikely that French holding companies are predominantly used to accumulate new investments in other subsidiaries. Further evidence emerges when we analyze the relationship between dividends received and the uses for those dividends. If a holding company absorbs dividends, i.e. receives dividends but does not pass them on to the next layer, it will put them to one of three uses: (1) to pay debt service; (2) to make investments; and (3) to save by increasing cash or paying down debt. Performing correlation analyses with these three variables, we find that the

## Table 2.7: Determinants of dividend payouts for all firms - alternative definition of pyramidal leverage

| Pyramidal leverage, missing = 0 | Pyramidal leverage (average) | | | Pyramidal leverage (equivalent) | | |
|---|---|---|---|---|---|---|
| Variables | (1) Div / TA | (2) Div / TA | (3) Div / TA | (4) Div / TA | (5) Div / TA | (6) Div / TA |
| Pyramidal Leverage | -0.00200 | -0.00580 | -0.00570 | -0.00295 | -0.00214 | -0.00270 |
| | (0.00369) | (0.00464) | (0.00496) | (0.00425) | (0.00591) | (0.00604) |
| Pyramidal Leverage × *d*PostCrisis | 0.00685 | 0.0203** | 0.0151* | 0.0101* | 0.0144* | 0.00915 |
| | (0.00502) | (0.00999) | (0.00837) | (0.00513) | (0.00774) | (0.00644) |
| Leverage | -0.0216*** | -0.0344*** | -0.0318*** | -0.0192*** | -0.0326** | -0.0294** |
| | (0.00754) | (0.0127) | (0.0103) | (0.00640) | (0.0141) | (0.0116) |
| Leverage × *d*PostCrisis | -0.00294 | -0.00378 | -0.00253 | -0.00725 | -0.0103 | -0.0195 |
| | (0.0134) | (0.0168) | (0.0159) | (0.0146) | (0.0219) | (0.0238) |
| Interest Coverage Ratio | 0.00007 | | | 0.00007 | | |
| | (0.00005) | | | (0.00005) | | |
| *d*Interest Coverage Ratio × Pyramidal Lev. × *d*PostCrisis | -0.00533 | | | -0.00487 | | |
| | (0.00913) | | | (0.00561) | | |
| Net Debt/EBITDA | | 0.000982* | | | 0.00104* | |
| | | (0.000554) | | | (0.000547) | |
| *d*(Net Debt/EBITDA) × Pyramidal Lev. × *d*PostCrisis | | -0.0209** | | | -0.00936** | |
| | | (0.00918) | | | (0.00466) | |
| *d*Leverage × Pyramidal Lev. × *d*PostCrisis | | | -0.00308 | | | 0.00686 |
| | | | (0.00973) | | | (0.00734) |
| *d*Loss | 0.00637 | 0.00889** | 0.0106* | 0.00657 | 0.00893** | 0.0104* |
| | (0.00415) | (0.00433) | (0.00557) | (0.00417) | (0.00439) | (0.00576) |
| Control wedge | -0.00059** | - | - | - | - | -0.000567* |
| | (0.000262) | (0.000285) | (0.000275) | (0.000273) | (0.000349) | (0.000327) |
| Tobin's Q | 0.00125 | 0.00562* | 0.00635** | 0.00127 | 0.00556* | 0.00630** |
| | (0.00214) | (0.00302) | (0.00298) | (0.00215) | (0.00302) | (0.00299) |
| ROA | 0.0968* | 0.235*** | 0.160** | 0.0956* | 0.234*** | 0.159* |
| | (0.0552) | (0.0881) | (0.0804) | (0.0559) | (0.0885) | (0.0814) |
| Annual share turnover | 0.00122 | 0.000774 | 0.00005 | 0.00119 | 0.000687 | 0.000220 |
| | (0.00178) | (0.00249) | (0.00208) | (0.00181) | (0.00259) | (0.00223) |
| Ret. Earnings/TE | 0.00104 | -0.000243 | 0.000371 | 0.000978 | 0.000238 | 0.000763 |
| | (0.00210) | (0.00322) | (0.00314) | (0.00212) | (0.00310) | (0.00309) |
| Additional control variables | Y | Y | Y | Y | Y | Y |
| Year and industry FE | Y | Y | Y | Y | Y | Y |
| Observations | 1,042 | 1,006 | 1,120 | 1,042 | 1,006 | 1,120 |
| R-squared | 0.296 | 0.386 | 0.318 | 0.298 | 0.384 | 0.317 |

Table 2.7 reproduces the estimation of Table 2.4, Panel B, with an alternative measure of pyramidal leverage: for both average leverage and equivalent leverage, instead of assuming that missing holding entities have the mean leverage, we now conservatively set their leverage to zero. Regressions explain the dividend payouts by the operating company for firms controlled by a pyramid. The independent variable is Dividends over Total Assets. Pyramidal leverage is measured by average leverage in equations (1) to (3), and equivalent leverage in equations (4) to (6) of each panel. Both panels include the same set of independent variables as does Table 4. The additional control variables not reported in the Table are : *Ln*(Assets), Cash and cash equivalents, Operating risk, and Sales Growth. Six industry dummies and year dummies are always included. Since we include year dummies, the dummy variable *d*PostCrisis for the three post-crisis years 2009-2001 is not included and only appears in the interaction terms. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 2.1 and 2.2 for all variable definitions.

## Table 2.8: Determinants of dividends pass-through - alternative definition of pyramidal leverage

| Pyramidal leverage, missing = 0 | Pyramidal leverage *not* lagged | | Pyramidal leverage lagged | |
|---|---|---|---|---|
| | (1) DivPassThrough | (2) DivPassThrough | (3) DivPassThrough | (4) DivPassThrough |
| Number of layers | -0.0716*** | -0.0610*** | -0.0765*** | -0.0621*** |
| | (0.0116) | (0.0127) | (0.0107) | (0.0148) |
| Pyramid leverage (average) | -0.354** | | -0.330* | |
| | (0.167) | | (0.187) | |
| Pyramidal leverage | | -0.282*** | | -0.286*** |
| | | (0.0904) | | (0.101) |
| Pyramid leverage (average) | -0.101 | | -0.124 | |
| | (0.214) | | (0.232) | |
| Pyramidal leverage (equivalent) × *d*PostCrisis | | 0.172 | | 0.0981 |
| | | (0.126) | | (0.123) |
| Observations | 872 | 872 | 673 | 673 |
| R-squared | 0.145 | 0.143 | 0.173 | 0.174 |

In this table, we reproduce the estimation of Table 6 Panel B with an alternative measure of pyramidal leverage; for average leverage and equivalent leverage, instead of assuming that missing holding entities have the mean leverage, we now conservatively set their leverage to zero. Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 2.1 and 2.2 for variable definitions.

correlation between dividends received and interest rate obligations is very high, at $\rho \geqslant 0.6$ for various variable definitions. This is in contrast to the absence of any correlation between dividends received and the two other possible dividend uses, the increase in total assets between year t and year t+1 and the increase in cash.

Multivariate regressions show evidence consistent with this correlation. We recall that the coefficients for the two pyramidal debt measures are highly significant and negative in Table 2.6, Panel B, and that this relationship does not change after the crisis. By contrast, we find no evidence (in untabulated regressions) that dividends passed through are determined by a holding vehicle's value or a change in its total assets. In conclusion, our findings suggest that debt service considerations are the major determinant of payout decisions in the pyramid.

### 2.6.4 Double Voting Rights and Share Repurchases

Pyramidal leverage also has an impact on the disproportionality between voting and cash flow rights. In France, pyramids are the only available control-enhancing mechanism, besides double voting rights. One final possibility we explore is that owners might choose pyramidal leverage mostly as a means to magnify their effective control wedge.

To investigate this possibility, we explicitly analyze double voting rights, which are a widely used control-enhancing mechanism in France.[22] According to

[22] Ginglinger and Hamon (2012) report that about two thirds of listed French companies adopt double voting rights and that they are most popular among smaller and family companies; our numbers are comparable. Two other control-enhancing devices are in principle available but rarely used: non-voting shares are used by less than 2% of blockholder-controlled firms; voting caps are used by only about 1% (Ginglinger and Hamon, 2012). In 2014, the French law changed and the grant of double voting rights was

French law, the company's charter can convey a double voting right to each share if the share is held for a specified period, which must be between two and four years. Thus, double voting rights are distinct from dual-class shares as they are a premium for loyalty that is non-exclusive (every share acquires the right after satisfying the holding requirement) and is lost when the share is sold. Controlling owners who adopt double voting rights are those most likely to be driven by control motives, and the use of pyramidal leverage will magnify the control wedge most for those owners.

To assess the role played by double voting rights, we trace the actual voting rights (including double voting rights) of the dominant owner in our 2003 sample from annual reports and disclosure statements obtained from the AMF, the French stock market regulator. We find that for operating firms, double voting rights make no difference to the control rights allocation – either because the dominant owner already holds more than 50% of the votes, or because the firm remains widely held after accounting for double voting rights. We calculate a modified measure for the control wedge taking into account double voting rights, and rerun our relevant regressions with this modified measure. Our results are unchanged by this modification (not reported in tables): the control wedge variable remains insignificant, whereas the variables for pyramidal leverage remain strongly significant.

We do not explicitly include stock repurchases in our study. Stock repurchases in France are relatively small in value: David and Ginglinger (2016) report a ratio of buybacks to dividends of about 1:5 for the 2003-2012 period for French companies, and report that the ratio is the same for firms that drastically

made the legal default status, leading to a considerably increase of their use, even though companies could opt out (so-called Florange law, see Becht, Kamisarenka, Pajuste, 2018). This law change, however, occurred after our sample period.

cut dividends during the post-crisis period after 2008 and firms that do not. These proportions make it unlikely that including stock buybacks would alter our results. Also, David and Ginglinger (2016) find that stock repurchases in the 2003-2007 period are unrelated to firms' decision whether to drastically cut dividends during the post-crisis period. In addition, in a preliminary test of the early years of our sample period (years 2000-2003), we include data on actual stock repurchases and find that their inclusion does not alter our findings on dividend payouts in this subsample. For these reasons, we are confident that our main results would not be altered when adding the value of stock repurchases to our dependent variables.

## 2.7 Conclusions

We investigate the use of leverage by dominant owners by analyzing the case of France where blockholders have tax incentives to structure their leverage in holding vehicles, and holding companies are relatively transparent. We suggest that debt in pyramidal holdings increases the need for dividend payouts such that the controlling owner can meet the debt service obligations. These predictions are borne out in our empirical investigation around the 2008/2009 financial crisis. We find the use of debt in holding companies leads to increased dividend payouts during the crisis years. We use different metrics to aggregate the leverage of pyramids and find that in each case the dividend payouts of the listed holding company are largely determined by the debt service obligations in the holding companies.

We analyze the actual dividend payouts to dominant owners along the pyramidal chain. We find that on average, leveraged owners ultimately receive only about 60% of the dividends made available to them, with the rest being absorbed in pyramids mainly to service debt. Thus, while many leveraged blockholders probably have the capacity to service their pyramidal debt by reducing their dividend income, our results show that they prefer on average to

pass on at least parts of the required adjustment to the companies they control via a change in the payout policy.

## Appendix A - Definition of Variables

| | |
|---|---|
| Dividend / Total assets | Cash dividend divided by total assets, with dividend measured in year t+1. |
| Dividend / Cash flows | Cash dividend divided by net income plus depreciation, with dividend measured at t+1; set to one when cash flows are negative or when the ratio exceeds one. |
| Ln(Total assets) | Natural logarithm of book of value total assets. |
| Sales growth | Two-year growth rate of sales. |
| Operational risk | Standard deviation of return on assets measured over five years (t-4 to t). |
| Loss | Dummy variable equal one when net income is negative and zero otherwise. |
| Capex | Capital expenditure. |
| Tobin's Q | Market capitalization divided by book value of assets. |
| Cash flow | Net income plus depreciation. |
| ROA | Return on assets. |
| Direct ownership | Proportion of common shares held by the dominant owner (largest owner when controlling more than 20% of voting rights). See Section 3.2 for details. |
| Control wedge | Discrepancy between voting and cash flow rights. See Section 3.2 for details. |
| Interest coverage ratio | EBIT / Interest expense, similar to Hoshi et al. (1990). |
| Leverage ratio | Total financial debt over total assets. |
| Net debt / EBITDA | Total financial debt minus cash and cash equivalents, as a fraction of EBITDA. |
| Retained earnings/ Total equity | Aggregate of (cumulative) retained earnings as a proportion of total equity. |
| Annual share turnover | Annual volume / number of shares outstanding. Annual volume is the cumulative daily trading volume over the calendar year; number of shares the number of common shares outstanding at fiscal-year end. |
| Widely held | Dummy variable equal to one if the company has no dominant owner, controlling more than 20% of voting rights. |
| Block owned pyramid | Dummy variable equal to one if the company has a dominant owner, controlling more than 20% of voting rights, who controls the company using at least one holding vehicle. |
| Block owned no pyramid | Dummy variable equal to one if the company has a dominant owner, controlling more than 20% of voting rights, who does not make use of holding vehicles. |
| Investment ratio | Part of all assets of a holding company that is constituted by the ultimate owners' equity stake in the pyramidal entity directly below, or in the listed operating company if the listed operating company is placed immediately below the holding entity (investment ratios are lagged by one period, and capped within the interval [0, 1]). |

| | |
|---|---|
| Interest expense | Total of interest expenditure by a holding vehicle. |
| Dividends received | Amount of dividends received by the holding entity (in euros). |
| Dividends received/Total assets | Dividends received, divided by the total assets of the holding entity. |
| Div. received / (Interest expense × Investment ratio) | Dividends received, divided by Interest expense × Investment ratio. |
| Div. received / (Interest expense × Investment ratio capped between 0 and 1) | Dividends received, divided by Interest expense × Investment ratio. The value of this ratio is fixed at zero if the calculation yields a negative value, and fixed at one if the calculation yields a value larger than one. |
| Pyramidal leverage (average) | Mean leverage ratio of all observed pyramidal entities in the pyramidal structure. See Section 3.2 for details. |
| Pyramidal leverage (equivalent) | Aggregate leverage exposure of the ultimate owner through all pyramidal entities including the bottom company in the pyramidal structure. See Section 3.2 for details of its calculation. |
| Number of layers | Longest chain of companies linking the ultimate owner to the operating company, including the operating company, so the number of holding companies between ultimate owner and operating company is number of layers – 1. |
| Proportion of missing entities | Fraction of holding companies for which we do not observe the capital structure. |
| dPostCrisis | Dummy variable equal to one for the post-crisis year 2009, 2010, 2011. |
| dNext is Ultimate Owner | Dummy variable equal to one if the owner of a holding vehicle controlling more than 20% of its voting rights is the ultimate dominant owner of the operating company. |
| DivPassThrough | Fraction of the dividends that the operating company makes available to the dominant owner that is eventually received by the dominant owner, i.e. dividends received by the dominant owner / (dominant owner's combined ownership in the operating company × dividend paid by operating company). |

**Appendix B: Full algorithms for the equivalent leverage and control wedge**

To correctly identify dominant owners and their control and cash flow rights, we first identify for each company all direct equity stakes in excess of 5%. We then determine whether the entities owning these blocks of shares are directly or indirectly owned by other shareholders or entities with stakes in excess of 5%. This process is iterated until we reach the ultimate owners.[23] For the set of $N$ entities found in this process, including ultimate owners and the operating company, we denote the equity stake of entity $i$ in entity $j$ by $\alpha_{ij}$. Let $\mathbf{A} = (\alpha_{ij})$ be the $N \times N$-matrix of all shareholdings in the pyramid, including those of ultimate owners. We place the operating company in the last position, so that $\alpha_{iN}$ denotes entity $i$'s stake in the operating company. Let $\mathbf{a}_k$ be the column vector of direct stockholdings of ultimate shareholder $k$ in the $N$ entities. Then the cash flow rights $\mathbf{f}_k$ of ultimate shareholder $k$ in all entities are consistently defined by the vector:[24]

$$\mathbf{f}_k = (\mathbf{I} - \mathbf{A})^{-1} \mathbf{a}_k ,$$

where $\mathbf{I}$ is the identity matrix. The $N$-th element of this vector, $f_{kN}$, denotes shareholder $k$'s level of cash flow rights in the operating firm. For example, if the pyramid consists only of a single control chain of vertically stacked entities (as in the Section 2.2 example), this algorithm determines $f_{kN}$ simply as the product of all ownership stakes along this control chain, $f_{kN} = \prod_{i=k,\ldots,N-1} \alpha_{i,i+1}$. If the ultimate owner

[23] For ultimate owners identified in this procedure, we also record share stakes smaller than 5% that they hold in the operating company or in another entity.

[24] This procedure is used and explained e.g. in Almeida et al. (2011) and Chapelle and Szafarz (2005). It follows the classical example of input-output analysis and can handle any level of pyramidal complexity.

is linked to the operating company via multiple but disjointed control chains, the algorithm will calculate the product of ownership stakes along each control chain and then add these products to obtain $f_{kN}$.[25] Following Almeida et al. (2011), we capture the discontinuous character of control rights by introducing a threshold that indicates the level of control above which the shareholder is said to assume absolute control; we also fix its value at 50%. Adopting this majority rule, we convert effective control rights (i.e. the sum of direct and indirect voting rights in a company) of greater than 50% in any entity into full control of 100%. The other stakes are then allocated zero control rights. Formally, we redefine the control right stake of owner *k* in entity *j* as:

$$c_{kj} = \begin{cases} 1 & \text{if} \quad f_{kj} > 0.5 \\ 0 & \text{if} \quad \exists i \neq k, f_{ij} > 0.5 \\ f_{kj} & \text{otherwise} \end{cases}$$

This algorithm must be applied iteratively, by replacing $f_{kj}$ by $c_{kj}$ for all ultimate owners and repeating the algorithm until the procedure converges to a vector $\mathbf{c_k}$, which in our sample it does in all cases after only a few rounds.[26] After the iterative process converges, $c_{kN}$, the *N*-th element in the vector $\mathbf{c_k}$, denotes

[25] The matrix approach is only needed to properly define ownership rights in more complex pyramidal structures, such as cross-holdings, and it handles any level of complexity consistently. For the implementation of the matrix algorithm, we use a consistent and conventional procedure to resolve possible conflicts and to assign the appropriate stake to the applicable control chain, by checking whether a particular stake occurs twice and then stopping tracing.

[26] The iteration is only needed if an ultimate owner *k* has several, direct or indirect, holdings in an entity *j*; if their sum $f_{kj}$ exceeds 0.5, the algorithm will convert $f_{kj}$ to $c_{kj} = 1$, which in turn may lead the combined holdings of owner *k* in another entity *m* to exceed 0.5 and hence trigger the next round of conversions, etc.

shareholder *k*'s level of control rights in the operating firm.[27] We define the control wedge of owner *k* as:

$$\text{Control Wedge}_k = \frac{c_{kN}}{f_{kN}} .$$

We calculate *equivalent leverage* in complex pyramids as follows. Let $l_i$ denote the leverage ratio (1 - equity/total assets) of entity *i* ($l_i = 0$ for ultimate owners). We define $\beta_{ij} = \alpha_{ij} \cdot (1 - l_i)$ as the debt-adjusted cash flow right of entity *i* after receiving dividends from entity *j* and paying its debt service. Let $\mathbf{B} = (\beta_{ij})$ be the $N \times N$-matrix of all debt-adjusted cash flow rights in the pyramid, and $\mathbf{b}_k$ as the vector of debt-adjusted cash flow rights of shareholder *k*. Following the same procedure as for unadjusted cash flow rights, we obtain the vector $\mathbf{d}_k \equiv (\mathbf{I} - \mathbf{B})^{-1} \mathbf{b}_k$, where the *N*-th element $d_{kN}$ denotes shareholder *k*'s level of debt-adjusted cash flow rights in the operating firm. That is, we decompose $f_{kN}$ introduced above into two components: $f_{kN} - d_{kN}$ is the part that is consumed by debt service obligations, and $d_{kN}$ is the part that is left for the ultimate owner. Taking into account that we need to scale by the aggregate cash flow rights, we define the equivalent leverage of ultimate owner *k* as:

$$\text{Equivalent pyramidal leverage}_k = \frac{f_{kN} - d_{kN}}{f_{kN}} .$$

[27] It is instructive to compare this measure of control rights to the widely used weakest link rule (see La Porta, Lopez-de-Silanes, and Shleifer, 1999). In a single control chain such as in the Figure 1 example, the weakest link equates control rights with the smallest equity stake along the chain, thus implicitly converting the control rights of all other links to 100% similar to our rule. Since this conversion, however, also applies to equity stakes smaller than 50% but larger than the weakest link, the weakest link rule often leads to assigning larger control rights to dominant owners than our rule does. The control rights assigned by the weakest link rule are not always larger in the case of multiple and complex control chains.

To provide some intuition for this matrix expression, in the case where there are just two distinct control chains (but there are no crossholdings or loops), this expression can be written as:

Equivalent pyramidal leverage$_k$ =

$$\frac{f_{kN} - d_{kN}}{f_{kN}} = \frac{\prod_{i=k,\ldots,N-1} \alpha_{i,i+1} \sum_{m=k+1,\ldots,N-1} \left( l_m \prod_{n=m+1,\ldots,N} (1-l_n) \right) + \prod_{i'=k,\ldots,N-1} \alpha_{i',i'+1} \sum_{m'=k+1,\ldots,N-1} \left( l_{m'} \prod_{n'=m'+1,\ldots,N} (1-l_{n'}) \right)}{\prod_{i=k,\ldots,N-1} \alpha_{i,i+1} + \prod_{i'=k,\ldots,N-1} \alpha_{i',i'+1}}$$

.

Obviously, in the case of a single control chain (as in the Section 2.2 example), there is a single product of equity stakes, $\prod_{i=k,\ldots,N-1} \alpha_{i,i+1}$, that cancels out from both the numerator and denominator, and we are left with the expression given in Section 2.2.

# Appendix C - Additional results referred to in Chapter 2

## Table IA2.1: Investment regressions

| Pyramidal leverage, missing = 0 | | |
|---|---|---|
| | (1) | (2) |
| VARIABLES | Capex | Capex |
| Tobin's Q | 0.0706*** | 0.0697*** |
| | (0.0176) | (0.0176) |
| Cash flow | 0.495** | 0.491** |
| | (0.201) | (0.204) |
| Dividend / Cash flow | -0.101** | -0.0990** |
| | (0.0467) | (0.0481) |
| Pyramidal leverage (average) | -0.0245 | |
| | (0.0698) | |
| Pyramidal leverage (equivalent) | | -0.0315 |
| | | (0.0412) |
| Pyramidal leverage (average) * *d*PostCrisis | 0.128 | |
| | (0.0812) | |
| Pyramidal leverage (equivalent) * *d*PostCrisis | | 0.0343 |
| | | (0.0585) |
| Other control variables | Y | Y |
| Year and industry FE | Y | Y |
| Observations | 1,087 | 1,087 |
| R-squared | 16.6% | 16.4% |

In this table, we test whether there is a significant change in investment expenditures (capex) after the crisis, as a function of pyramidal leverage. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 1 and 2 for variable definitions.

## Table IA2.2: Alternative dividend variables

| Variables | (1) Div/Sales | (2) Div/Sales | (3) Div/Sales | (4) Div/CF | (5) Div/CF | (6) Div/CF |
|---|---|---|---|---|---|---|
| Pyramidal leverage | -0.0421*** | -0.0425** | -0.0411** | -0.0333 | -0.0224 | -0.0231 |
| | (0.0150) | (0.0163) | (0.0159) | (0.0394) | (0.0416) | (0.0415) |
| Leverage | -0.0116 | -0.0181 | -0.0150 | -0.213*** | -0.188*** | -0.188*** |
| | (0.0322) | (0.0332) | (0.0334) | (0.0605) | (0.0663) | (0.0663) |
| Ln (assets) | 0.00552 | 0.00446 | 0.00547 | 0.0168** | 0.0170** | 0.0166** |
| | (0.00367) | (0.00332) | (0.00373) | (0.00701) | (0.00672) | (0.00745) |
| Cash and equivalents | 0.0950 | 0.0771 | 0.0851 | 0.185 | 0.198 | 0.197 |
| | (0.0612) | (0.0646) | (0.0632) | (0.137) | (0.134) | (0.134) |
| *d*Loss | 0.0184* | 0.0197* | 0.0211* | -0.0295 | -0.0187 | -0.0168 |
| | (0.0103) | (0.0113) | (0.0115) | (0.0401) | (0.0439) | (0.0447) |
| Operating risk | 0.393** | 0.423* | 0.438* | 0.162 | 0.423 | 0.410 |
| | (0.196) | (0.222) | (0.226) | (0.388) | (0.474) | (0.480) |
| Growth | -0.0244 | -0.0264 | -0.0275 | -0.0589* | -0.0602* | -0.0606* |
| | (0.0177) | (0.0178) | (0.0181) | (0.0352) | (0.0362) | (0.0361) |
| Control wedge | 0.00498 | 0.00515 | 0.00500 | 0.00493 | 0.00484 | 0.00487 |
| | (0.00475) | (0.00483) | (0.00474) | (0.00590) | (0.00583) | (0.00583) |
| Tobin's Q | 0.00495 | -0.0009 | -0.0004 | 0.0114 | 0.00920 | 0.00873 |
| | (0.0132) | (0.0104) | (0.0104) | (0.0136) | (0.0141) | (0.0141) |
| ROA | 0.328*** | 0.383*** | 0.383*** | 0.112 | 0.0217 | 0.0263 |
| | (0.114) | (0.143) | (0.143) | (0.213) | (0.323) | (0.324) |
| Pyramidal leverage × *d*PostCrisis | 0.0409** | 0.0394** | 0.0416** | 0.111* | 0.111* | 0.107* |
| | (0.0187) | (0.0183) | (0.0184) | (0.0624) | (0.0631) | (0.0628) |
| Leverage × *d*PostCrisis | 0.00630 | 0.00754 | 0.0112 | | | |
| | (0.0398) | (0.0437) | (0.0432) | | | |
| Liquidity | -0.0193* | | -0.0158 | -0.0136 | | 0.00871 |
| | (0.0106) | | (0.0107) | (0.0297) | | (0.0283) |
| Retained earnings / Total equity | | -0.00017 | -0.00074 | | 0.0419 | 0.0436 |
| | | (0.00848) | (0.00838) | | (0.0303) | (0.0305) |
| Year and industry FE | Y | Y | Y | Y | Y | Y |
| Observations | 1.151 | 1.101 | 1.100 | 1.126 | 1.077 | 1.076 |
| R-squared | 0.134 | 0.142 | 0.142 | 0.133 | 0.141 | 0.142 |

This table follows our main regression of Table 2.4, Panel A, but uses alternative measures for the left-hand side variable: Dividend/Sales (Div/Sales) in columns (1) to (3), and Dividend/Cash Flow (Div/CF) in columns (4) to (6). Pyramidal leverage used in the regressions reported in this table is pyramidal leverage (average). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. See Tables 2.1 and 2.2 for variable definitions.

## Table IA2.3: Summary statistics pyramid-owned companies and holding companies

**Panel A: Summary statistics pyramid-owned companies per period, pyramids with complete info only**

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| ***Financials*** | | | | | | | | |
| Dividend / Total assets | 0.020 | 0.012 | 0.040 | 540 | 0.014 | 0.007 | 0.023 | 184 |
| Dividend / Cash flows | 0.201 | 0.158 | 0.224 | 517 | 0.186 | 0.120 | 0.236 | 178 |
| *Ln*(Total assets) | 6.464 | 6.442 | 2.160 | 540 | 6.796 | 6.899 | 2.110 | 184 |
| Leverage ratio | 0.229 | 0.232 | 0.162 | 540 | 0.242 | 0.224 | 0.182 | 184 |
| Sales growth | 0.117 | 0.100 | 0.302 | 502 | 0.000 | 0.033 | 0.290 | 177 |
| Operational risk | 0.036 | 0.022 | 0.038 | 540 | 0.039 | 0.028 | 0.041 | 184 |
| Loss | 0.119 | - | 0.324 | 540 | 0.234 | - | 0.424 | 184 |
| Capex | 0.295 | 0.269 | 0.250 | 473 | 0.270 | 0.223 | 0.240 | 167 |
| Tobin's Q | 1.477 | 1.205 | 0.856 | 539 | 1.163 | 1.031 | 0.406 | 184 |
| Cash flow | 0.083 | 0.075 | 0.100 | 540 | 0.063 | 0.055 | 0.075 | 184 |
| Direct ownership | 0.372 | 0.326 | 0.202 | 540 | 0.389 | 0.341 | 0.220 | 184 |
| Control wedge | 2.215 | 1.659 | 2.262 | 540 | 2.648 | 1.769 | 3.951 | 184 |
| Pyramidal leverage (average) | 0.198 | 0.136 | 0.293 | 539 | 0.229 | 0.165 | 0.271 | 184 |
| Pyramidal leverage (equivalent) | 0.435 | 0.409 | 0.327 | 539 | 0.483 | 0.489 | 0.308 | 184 |
| Number of layers | 2.620 | 2.000 | 1.608 | 540 | 2.728 | 2.000 | 1.650 | 184 |
| Proportion of missing entities | - | - | - | 540 | - | - | - | 184 |
| ***Financial constraints, stock market liquidity, firm life cycle*** | | | | | | | | |
| Interest coverage ratio | 28.180 | 5.098 | 86.716 | 491 | 35.522 | 4.980 | 113.271 | 173 |
| Net debt / EBITDA | 1.943 | 1.226 | 2.704 | 482 | 2.456 | 1.314 | 3.303 | 161 |
| Annual share turnover | 0.235 | 0.098 | 0.361 | 540 | 0.314 | 0.086 | 0.492 | 183 |
| Retained earnings / Total equity | 0.535 | 0.622 | 0.382 | 519 | 0.591 | 0.701 | 0.403 | 174 |

**Panel B: Summary statistics holding companies in pyramids, pyramids with complete information only**

| | Pre-crisis (2000-2008) | | | Post-crisis (2009-2011) | | |
|---|---|---|---|---|---|---|
| | Mean | Median | # obs | Mean | Median | # obs |
| Dividends received / Total assets | 0.041 | 0.013 | 770 | 0.033 | 0.007 | 281 |
| Interest expense / Total assets | 0.012 | 0.007 | 770 | 0.012 | 0.005 | 281 |
| Total debt / Total assets | 0.190 | 0.102 | 770 | 0.196 | 0.080 | 281 |
| LT debt / Total assets | 0.164 | 0.031 | 770 | 0.195 | 0.063 | 281 |
| Cash / Total assets | 0.069 | 0.012 | 770 | 0.059 | 0.007 | 281 |
| Investment ratio | 1.012 | 0.651 | 770 | 1.136 | 0.813 | 281 |
| Investment ratio, capped between 0 and 1 | 0.597 | 0.651 | 770 | 0.639 | 0.813 | 281 |
| *Ln*(Total assets) | 5.641 | 5.207 | 770 | 5.620 | 5.175 | 281 |
| *d*Next is Ultimate Owner | 0.626 | 1.000 | 770 | 0.534 | 1.000 | 281 |
| Ownership stake | 0.565 | 0.517 | 770 | 0.583 | 0.553 | 281 |

In this table, we provide additional summary statistics on pyramidal-owned companies and of their holding companies for the entire sample period, in addition to the summary statistics provided in Table 2.5. Panel A and Panel B of this table only include holding companies for companies with complete observation of the pyramidal variables, in contrast to Table 2.5, Panel A and Panel B, that includes all companies, including companies with incomplete observation of the pyramidal entities. See Tables 2.1 and 2.2 for variable definitions.

## Table IA2.4: Summary statistics pyramid-owned companies per period, pyramids with complete information only, with sample split by pyramidal average leverage

*Observations with top quartile pyramidal average leverage*

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| Dividend / Total assets | 0.022 | 0.012 | 0.058 | 135 | 0.021 | 0.011 | 0.037 | 46 |
| Ln (Total assets) | 6.921 | 7.255 | 2.408 | 135 | 6.862 | 6.759 | 2.112 | 46 |
| Leverage ratio | 0.256 | 0.258 | 0.149 | 135 | 0.238 | 0.230 | 0.189 | 46 |
| Sales growth | 0.112 | 0.123 | 0.326 | 126 | 0.058 | 0.056 | 0.158 | 43 |
| Operational risk | 0.039 | 0.022 | 0.044 | 135 | 0.050 | 0.039 | 0.043 | 46 |
| Loss | 0.156 | - | 0.364 | 135 | 0.239 | - | 0.431 | 46 |
| Capex | 0.291 | 0.281 | 0.260 | 114 | 0.307 | 0.224 | 0.270 | 44 |
| Tobin's Q | 1.428 | 1.271 | 0.583 | 135 | 1.216 | 1.072 | 0.425 | 46 |
| Cash flow | 0.056 | 0.063 | 0.129 | 135 | 0.056 | 0.055 | 0.063 | 46 |
| Dividend / Cash flows | 0.205 | 0.167 | 0.218 | 131 | 0.223 | 0.183 | 0.232 | 46 |
| Direct ownership | 0.414 | 0.396 | 0.212 | 135 | 0.440 | 0.341 | 0.251 | 46 |
| Control wedge | 1.678 | 1.506 | 0.704 | 135 | 1.482 | 1.159 | 0.719 | 46 |
| Pyramidal leverage (average) | 0.522 | 0.470 | 0.426 | 135 | 0.580 | 0.490 | 0.310 | 46 |
| Pyramidal leverage (equivalent) | 0.727 | 0.667 | 0.373 | 135 | 0.766 | 0.738 | 0.269 | 46 |
| Number of layers | 2.681 | 2.000 | 1.268 | 135 | 2.609 | 2.000 | 0.977 | 46 |
| Proportion of missing entities | - | - | - | 135 | - | - | - | 46 |
| Interest coverage ratio | 15.821 | 4.478 | 42.726 | 126 | 25.627 | 7.372 | 55.483 | 45 |
| Net debt / EBITDA | 2.166 | 1.775 | 2.083 | 118 | 2.513 | 1.143 | 3.343 | 39 |
| Annual share turnover | 0.352 | 0.152 | 0.488 | 135 | 0.445 | 0.078 | 0.654 | 46 |
| Retained earnings / Total equity | 0.427 | 0.432 | 0.397 | 129 | 0.579 | 0.701 | 0.412 | 44 |

*Observations with bottom three quartiles pyramidal average leverage*

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| Dividend / Total assets | 0.019 | 0.012 | 0.033 | 404 | 0.011 | 0.007 | 0.014 | 138 |
| Ln (Total assets) | 6.321 | 6.206 | 2.045 | 404 | 6.774 | 6.919 | 2.117 | 138 |
| Leverage ratio | 0.220 | 0.218 | 0.166 | 404 | 0.244 | 0.220 | 0.180 | 138 |
| Sales growth | 0.120 | 0.096 | 0.294 | 375 | -0.018 | 0.028 | 0.319 | 134 |
| Operational risk | 0.034 | 0.021 | 0.036 | 404 | 0.035 | 0.022 | 0.040 | 138 |
| Loss | 0.104 | - | 0.306 | 404 | 0.232 | - | 0.424 | 138 |
| Capex | 0.296 | 0.267 | 0.248 | 359 | 0.257 | 0.213 | 0.228 | 123 |
| Tobin's Q | 1.493 | 1.182 | 0.930 | 403 | 1.146 | 1.011 | 0.399 | 138 |
| Cash flow | 0.093 | 0.080 | 0.084 | 404 | 0.065 | 0.055 | 0.079 | 138 |
| Dividend / Cash flows | 0.200 | 0.154 | 0.226 | 385 | 0.173 | 0.097 | 0.236 | 132 |
| Direct ownership | 0.359 | 0.310 | 0.197 | 404 | 0.372 | 0.342 | 0.207 | 138 |
| Control wedge | 2.396 | 1.722 | 2.559 | 404 | 3.036 | 1.827 | 4.481 | 138 |
| Pyramidal leverage (average) | 0.090 | 0.069 | 0.088 | 404 | 0.111 | 0.096 | 0.105 | 138 |
| Pyramidal leverage (equivalent) | 0.337 | 0.325 | 0.241 | 404 | 0.389 | 0.362 | 0.258 | 138 |
| Number of layers | 2.601 | 2.000 | 1.709 | 404 | 2.768 | 2.000 | 1.822 | 138 |
| Proportion of missing entities | - | - | - | 404 | - | - | - | 138 |
| Interest coverage ratio | 32.586 | 5.787 | 97.178 | 364 | 39.000 | 4.604 | 127.527 | 128 |
| Net debt / EBITDA | 1.871 | 0.963 | 2.876 | 364 | 2.437 | 1.362 | 3.304 | 122 |
| Annual share turnover | 0.195 | 0.087 | 0.299 | 404 | 0.270 | 0.087 | 0.418 | 137 |
| Retained earnings / Total equity | 0.570 | 0.665 | 0.370 | 390 | 0.596 | 0.699 | 0.402 | 130 |

**Table IA2.4 (continued): Summary statistics pyramid-owned companies per period, pyramids with complete information only, with sample split by pyramidal equivalent leverage**

*Observations with top quartile pyramidal equivalent leverage*

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| Dividend / Total assets | 0.018 | 0.010 | 0.044 | 135 | 0.009 | 0.003 | 0.013 | 46 |
| Ln (Total assets) | 7.590 | 7.755 | 2.295 | 135 | 7.152 | 6.853 | 2.130 | 46 |
| Leverage ratio | 0.287 | 0.306 | 0.160 | 135 | 0.329 | 0.342 | 0.219 | 46 |
| Sales growth | 0.080 | 0.091 | 0.310 | 127 | -0.053 | 0.009 | 0.326 | 41 |
| Operational risk | 0.036 | 0.019 | 0.041 | 135 | 0.045 | 0.036 | 0.046 | 46 |
| Loss | 0.141 | - | 0.349 | 135 | 0.326 | - | 0.474 | 46 |
| Capex | 0.275 | 0.264 | 0.245 | 114 | 0.247 | 0.213 | 0.228 | 41 |
| Tobin's Q | 1.344 | 1.198 | 0.502 | 135 | 1.107 | 0.994 | 0.294 | 46 |
| Cash flow | 0.039 | 0.051 | 0.117 | 135 | 0.032 | 0.031 | 0.058 | 46 |
| Dividend / Cash flows | 0.234 | 0.165 | 0.282 | 124 | 0.137 | 0.047 | 0.182 | 45 |
| Direct ownership | 0.299 | 0.259 | 0.181 | 135 | 0.359 | 0.323 | 0.243 | 46 |
| Control wedge | 3.644 | 2.000 | 3.971 | 135 | 4.385 | 1.687 | 6.677 | 46 |
| Pyramidal leverage (average) | 0.431 | 0.342 | 0.459 | 135 | 0.440 | 0.366 | 0.384 | 46 |
| Pyramidal leverage (equivalent) | 0.829 | 0.771 | 0.337 | 135 | 0.861 | 0.810 | 0.209 | 46 |
| Number of layers | 3.874 | 3.000 | 1.945 | 135 | 4.043 | 3.000 | 2.573 | 46 |
| Proportion of missing entities | - | - | - | 135 | - | - | - | 46 |
| Interest coverage ratio | 9.618 | 3.350 | 34.404 | 116 | 8.329 | 2.821 | 19.408 | 43 |
| Net debt / EBITDA | 2.868 | 2.292 | 3.277 | 115 | 3.509 | 2.734 | 3.739 | 38 |
| Annual share turnover | 0.379 | 0.188 | 0.517 | 135 | 0.267 | 0.030 | 0.417 | 46 |
| Retained earnings / Total equity | 0.382 | 0.365 | 0.440 | 131 | 0.482 | 0.640 | 0.461 | 45 |

*Observations with bottom three quartiles pyramidal equivalent leverage*

| | Pre-crisis period (2000-2008) | | | | Post-crisis period (2009-2011) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Stdev | # obs | Mean | Median | Stdev | # obs |
| Dividend / Total assets | 0.021 | 0.012 | 0.039 | 404 | 0.016 | 0.010 | 0.025 | 138 |
| Ln (Total assets) | 6.098 | 5.973 | 1.972 | 404 | 6.677 | 6.899 | 2.097 | 138 |
| Leverage ratio | 0.210 | 0.210 | 0.158 | 404 | 0.213 | 0.193 | 0.159 | 138 |
| Sales growth | 0.131 | 0.115 | 0.298 | 374 | 0.016 | 0.051 | 0.277 | 136 |
| Operational risk | 0.035 | 0.022 | 0.037 | 404 | 0.036 | 0.024 | 0.039 | 138 |
| Loss | 0.109 | 0.000 | 0.312 | 404 | 0.203 | 0.000 | 0.404 | 138 |
| Capex | 0.301 | 0.272 | 0.252 | 359 | 0.277 | 0.239 | 0.244 | 126 |
| Tobin's Q | 1.521 | 1.209 | 0.942 | 403 | 1.182 | 1.037 | 0.436 | 138 |
| Cash flow | 0.098 | 0.087 | 0.087 | 404 | 0.073 | 0.067 | 0.077 | 138 |
| Dividend / Cash flows | 0.191 | 0.155 | 0.201 | 392 | 0.202 | 0.143 | 0.250 | 133 |
| Direct ownership | 0.397 | 0.335 | 0.203 | 404 | 0.399 | 0.367 | 0.212 | 138 |
| Control wedge | 1.739 | 1.582 | 0.829 | 404 | 2.068 | 1.769 | 2.204 | 138 |
| Pyramidal leverage (average) | 0.121 | 0.069 | 0.143 | 404 | 0.158 | 0.108 | 0.172 | 138 |
| Pyramidal leverage (equivalent) | 0.303 | 0.324 | 0.189 | 404 | 0.357 | 0.362 | 0.220 | 138 |
| Number of layers | 2.203 | 2.000 | 1.224 | 404 | 2.290 | 2.000 | 0.830 | 138 |
| Proportion of missing entities | 0.000 | 0.000 | 0.000 | 404 | 0.000 | 0.000 | 0.000 | 138 |
| Interest coverage ratio | 34.062 | 6.537 | 96.777 | 374 | 44.516 | 5.380 | 129.060 | 130 |
| Net debt / EBITDA | 1.653 | 0.752 | 2.432 | 367 | 2.130 | 1.004 | 3.101 | 123 |
| Annual share turnover | 0.186 | 0.091 | 0.277 | 404 | 0.330 | 0.107 | 0.515 | 137 |
| Retained earnings / Total equity | 0.586 | 0.666 | 0.345 | 388 | 0.629 | 0.749 | 0.376 | 129 |

Note: This table replicates the analysis of Table 2.5 Panel B, but uses a different breakdown of companies, by distinguishing between the top quartile of firms by pyramidal average or equivalent leverage, and all other firms. This table considers only pyramid-owned companies with complete financial information for all pyramidal entities. In this table, pyramidal leverage variables assume missing ratios = average ratios. See Table 2.1 and Table 2.2 for variables definitions.

# Chapter 3

# Do firms anticipate security issues by conservative reporting?[28]

## 3.1 Introduction

This paper presents evidence on the growing literature about investors' demand for conservative accounting (Wang, 2009). We define conservatism as an early recognition of economic losses – this is also known as conditional conservatism. We investigate the conservatism of US firms that attracted new funds from capital markets, i.e. changed their capital structure by publicly raising debt and equity capital during the period 1988 – 2013. Using data for both debt and equity issues, we explore two alternative views on the demand for conservatism, namely, the debtholder demand view and the shareholder demand view. While most studies focus on either the debtholder demand view (Wittenberg Moerman, 2008; Zhang, 2008; Beatty et al., 2008) or the shareholder demand view (Ball and Shivakumar, 2005; LaFond and Watts, 2008), our study takes both views into account.

[28] This chapter is based on Anantavrasilp, S., M. J.P. Lubberink & C. Huijgen, 2020, 'Do firms anticipate security issues by conservative reporting?'

The debtholder demand view suggests that conservatism is primarily intended to increase debt contracting efficiency. By triggering ex-post violations of debt contracts in a timely manner, immediate loss recognition allows lenders to more rapidly employ their decision rights following economic losses (Watts and Zimmerman, 1986; Watts, 1993, 2003a; Ball, 2001). Furthermore, conservative accounting generates an understatement of net asset values and thereby facilitates monitoring by debt holders and reduces deadweight agency costs (Watts and Zimmerman, 1986; Watts, 1993, 2003a; Ball, 2001). Lenders rely on verifiable lower bound measures of net assets both in assessing a potential loan and in monitoring the borrowers' solvency after a loan issue. We therefore expect that firms attracting debt capital will show conservative earnings.

The shareholder demand view focuses on the relationship between firms and their shareholders. Financial statements affect the manager's welfare and therefore his incentives as well. The firm's stock price, his compensation, the value of his stock options and the resources under his control are all affected by the firm's financial statements – even in the absence of formal accounting-based contracts. This view suggests that conservatism is a governance mechanism that reduces the manager's ability to manipulate and overstate financial performance and increases the firm's cash flows and value (LaFond and Watts, 2008). We thus expect that equity issues are accompanied by conservative accounting as well.

Ball et al. (2008) present a compelling case for debt markets driving the demand for conservative financial reporting. The authors suggest that efficient contracting in debt markets is primarily responsible for conservatism in accounting. They argue that early loss recognition is necessary so that loss-making firms violate covenant ratios in a timely manner, which gives lenders the opportunity to block decisions that could further erode debt quality. Regarding shareholders, however, Ball et al. argue that these are indifferent as to whether a gain or loss is reflected early in financial statements or received via non-financial

disclosures. Shareholders can always choose to sell their interest at available market prices which reflect both financial statement and non-financial statement information. Debtholders' contractual rights in covenants are mainly based on financial statement information. Therefore, timely recognition is important for debt markets per se. Ball et al. (2008) test their hypotheses by relating conservatism to the relative size of debt and equity markets in different countries and find that conservatism is more prevalent in debt-market oriented countries. Further, their results show no association between conservatism and the relative size of the equity markets.

Our main contribution to the role of debt and equity in explaining accounting conservatism is that we focus on the accounting choices companies make around important capital structure decisions by way of raising new debt and equity capital. Moreover, we study the timing of accounting conservatism. Using a large data sample that spans 25 years, we are able to analyze conservatism in each individual year around a debt or equity issue. One important aim is to investigate whether conservatism precedes an issue as a signal of reliability to capital providers or prevails after significant capital structure decisions have been made.

Our study into both the debtholder and shareholder perspectives regarding conservatism differs from Ball et al. (2008) in several respects. First, we analyze the relation between conservatism and capital structure at a micro-level, i.e. individual firm deal issues, while Ball et al. examine this relation at a macro-level, i.e. the relative size of national debt and equity markets. Second, we use a different measure of accounting conservatism – namely the Ball and Shivakumar (2005) model – where we define economic gains and losses in operating cash flow terms. The reason that we study cash flows instead of stock returns is that security issues are closely linked to stock prices, both in the period before the issue (Asquith and Mullins, 1986; Loughran and Ritter, 1997) and in the period after the issue (Spies and Affleck-Graves, 1995, 1999). Using a returns-based model would not allow us

to disentangle conservatism effects from market price causes and consequences of issues.

For a sample of US firms over the period 1988 – 2013, we find a growing degree of conservatism immediately before equity issues. Compared to non-issuing firms, equity issuing firms significantly increase their early recognition of economic losses in the years before an issue. After the issue, the incremental conservatism disappears. Further investigation into the deal type shows that this increased conservatism is driven by the public equity markets as the asymmetrical timeliness is not associated with private placements. Our interpretation is that conservative accounting serves as a signal of reliability to equity investors in order to receive more favorable deal terms in the period leading up to a fundraising event. The signaling role of the financial statements may not be as important in private deals, however, as the investors are already familiar with the issuers and /or would likely receive information from other (direct) channels.

We do not find any significant increase in conservatism in the years around a debt issue (both in public and private markets), which contradicts the earlier findings of Ball et al. (2008). Various robustness checks do not change the outcome of our analysis. Controlling for size and leverage differences of (non-)issuers does not influence the results. The findings are also robust using (an) alternative conservatism measure (s).

## 3.2 Conservatism and the role of debt and equity

While conservatism, defined here as the asymmetric timing of the recognition of bad and good news regarding future cash flows in the accounting system (Basu,

1997)[29], is a longstanding characteristic of accounting, research into its causes developed only in the last twenty years. Watts (2003) provides four possible explanations for accounting conservatism: contracting, litigation, accounting regulation, and taxation. Empirical evidence supports at least the contracting and litigation motivations. For instance, Ball et al. (2000) show that the earnings of firms domiciled in common law countries are considerably more conservative than those of firms domiciled in code law countries. They attribute this difference in conservatism to the fact that in common law countries, published financial accounting numbers are widely used in contracts, while information asymmetries among parties in firms in code law countries are resolved to a larger extent through private channels of communication without the use of external contracts.[30] Basu (1997) investigates the litigation argument for accounting conservatism in the institutional environment in the US and shows an increasing degree of conservatism in periods of high litigation, while in periods following court decisions that restrict liability growth, conservatism remained constant.

Ball et al. (2008) examine the properties of accounting numbers in several countries. Their goal is to differentiate between debtholders and shareholders demand for conservatism by classifying those countries into debt-oriented or shareholders-oriented capital markets. Their measure of debt or equity orientation

[29] This definition of conservatism, which is also referred to as conditional conservatism, is different from unconditional conservatism, i.e. the accounting bias toward reporting low book values of shareholders' equity independently of economic income (Ball and Shivakumar, 2005). In the remainder of this paper, the notion of conservatism relates to conditional conservatism.

[30] Explaining differences in conservatism between firms domiciled in different countries solely in terms of contracts might be a too simplistic view. Most authors, for instance Giner and Rees (2001), Raonic et al. (2004) and Bushman and Piotroski (2006), associate the level of conservatism with differences in institutional environments.

is the size of the respective markets relative to the Gross National Product for each country. Then they regress the average conservatism of a sample of listed companies within those countries against this orientation measure and find that firms within a relatively debt-oriented country are significantly more conservative than firms in countries where share markets prevail. Wittenberg-Moerman (2008) investigates the role of accounting conservatism in reducing the information asymmetry in the secondary loan market. This asymmetry arises since informed traders, as arrangers of such loan and syndicate participants in the secondary loan market, have a substantial information advantage over uninformed traders through the private communications with the borrower during the issue of the original loan. Uninformed traders depend solely on publicly available information about the borrower, such as the borrower's financial statements. She finds that early loss recognition by the borrower lowers the bid-ask spreads of traded loans, which suggests that conservatism increases the efficiency of the secondary trading of loans. Peek et al. (2010) compare the asymmetrical timeliness of earnings between public and private firms in 13 European countries and link the demand for accounting information in public disclosure to the countries' degree of investor and creditor protection. Their results show that conservatism is driven by the reporting demands of creditors, and not shareholders, of public firms. Zhang (2008) provides additional direct evidence of the benefits of conservative accounting for both lenders and borrowers. He shows that borrowers showing more conservatism in their financial reports receive more favorable terms on their loans in the form of lower interest rates. Furthermore, lenders receive ex-post benefits from conservative accounting of borrowers by way of accelerated contract violations, i.e. conservative borrowers are more likely to violate debt covenants in case of negative price shocks. In the same vein, Ahmed et al. (2002) document a positive association between conservative reporting and lower cost of debt while Nikolaev (2010) observes that, based on a sample of debt issues, reliance on

covenants in public debt contracts is positively correlated with a more timely recognition of economic losses. Furthermore, Kang et al. (2017) provide evidence for a positive relationship between conservatism and longer debt maturity. This is based on the notion that short-term debt gives lenders more frequent opportunities to renegotiate the terms, thereby lowering the information asymmetry during the maturity and hence the demand for conservative reporting

The idea that debtholders drive the demand for conservatism has been criticized by Guay and Verrecchia (2006). They argue that it is not evident that applying bias-reducing conventions in reported accounting figures (i.e. conservatism) will be more efficient than firm-specific or even setting-specific contracts that account for expected bias or make conditional adjustments over time. Beatty et al. (2008) examine this issue further. They find that, although debtholders use modifications to contracts especially in case of higher agency costs, these adjustments are not widespread. They do not find evidence that contract modifications are a complete substitute for accounting conservatism. This is consistent with the notion that both conservative reporting and conservative contract modifications are required to satisfy debtholders' demands.

The shareholders demand view on conservative accounting focuses on the relationship between firms and their shareholders. Bushman and Piotroski (2006) provide a motivation for shareholders to be concerned about conservative accounting. Although they do not explicitly distinguish between debtholder and shareholder demands for accounting conservatism, they argue that a contracting or bonding explanation can be premised on the limited liability of one of the contracting parties within a firm. In a typical setting, shareholders have limited liability, creating an incentive for them to pay generous dividends at the expense of debtholders. In order to resolve this conflict of interests, shareholders may bond themselves by means of covenants that relate dividends to earnings. Because the role of earnings is to adjust the lower bound verifiable estimate of re-investment,

the accounting system requires a lower verification effort for losses than for gains. This results in conservatism. Likewise, managers are the limited liability party in compensation contracts which align managers' and shareholders' interests. Shareholders therefore demand a deferral of compensation payments to managers until there is verifiable evidence of the results of the managers' efforts. Ball and Shivakumar (2005) investigate the quality of earnings of a sample of UK private firms in the years before their initial public offering (IPO) of shares. They argue that such firms report more conservative earnings – in their view an important dimension of reporting quality – than firms that remain private, since investors face higher information asymmetry in firms going public than in private firms. Moreover, elaborate market mechanisms monitor the financial reporting quality of firms going public relative to private firms. Their results show that IPO firms begin to report more conservatively several years before the actual IPO. Furthermore, they find that conservatism in the IPO prospectus accruals is significantly more prevalent than in private as well as non-IPO public firm accruals. Similarly, Givoly et al. (2010) analyze the financial reporting of companies with publicly traded equity and of privately held firms that issue publicly traded debt in the United States and observe that the former exhibit more timely loss recognition. They view conservatism as a response to the larger exposure to litigation risks as well as more severe agency problems faced by public companies compared to the private equity counterparts.

Additional evidence of shareholders demand for conservative financial statements is provided by LaFond and Watts (2008). They relate the degree of conservatism to differences in information asymmetry between firm insiders and outside equity investors. They also try to answer the question of the direction of the association between information asymmetry changes and the degree of conservatism. Their results show that information asymmetry changes in the preceding and contemporaneous year are positively related with their annual

conservatism measure.[31] This implies that information asymmetry increases precede (and are contemporaneous with) conservatism. In more recent research, conservatism is shown to be negatively associated with cost of equity (Garcia Lara et al., 2011) with the relation becoming weaker for firms with lower information asymmetry (Artiach and Clarkson, 2013). Kim et al. (2013) study seasoned equity offerings (SEO) in the United States and conclude that conservative reporting plays a contracting role between issuers and potential investors and contributes to less negative stock returns in the days around transaction announcements.

Given its contracting benefits, the role of conservative reporting could become especially relevant in the global financial crisis. The lack of liquidity in the global banking systems in the late 2000s not only reduced the available funds in the financial markets but also prompted lenders and investors to be stricter in assessing their prospects. This put constraints on firms' funding needs, which could have an impact on their accounting decisions. Balakrishnan et al. (2016) find that, while firms invest less during the financial crisis, those that report more conservatively see a smaller decline in investments than less conservative firms. The rationale here is that conservatism facilitates firms to access external funding, which then lessens their need to curb investment when faced with financial constraints. With respect to the relationship between conservatism and the equity market, Francis et al. (2013) investigate the impact of conservative accounting on shareholder performance during the financial crisis. Their main finding is that there is a significantly positive relationship between conservatism and firm value, especially in cases where agency problems are more pronounced (i.e. companies with weaker governance or higher information asymmetry).

[31] LaFond and Watts use PIN scores to measure of information aymmetry, where PIN score is the probability of an information-based trade derived from a structural market micro-structure model (Easley et al., 2002, 2010).

Viewing the evidence above, both the debtholder and the shareholder perspective will be addressed in investigating the role of accounting conservatism in capital raising activities.

## 3.3 Methodology and data

This section discusses the identification strategy and regression models that we employ, as well as the sample selection.

### 3.3.1 Regression models

Although use of Basu (1997) is widespread (see Wang et al. (2009) for an overview), we rely on a model that does not rely on security returns. We justify this choice on the grounds that empirical findings suggest that issues of shares or bonds are related to security returns in several ways. First, firms time their issues. For example, equity issues are typically placed on the market after run-ups in prices (Asquith and Mullins, 1986; Jung et al., 1996; Loughran and Ritter, 1997). Second, markets strongly and immediately react to the information conveyed in issues (Ritter, 2003). Third, firms exhibit long-term return effects following security issues, see for example Spiess and Affleck-Graves (1995) in the case of equity issues and Spiess and Affleck-Graves (1999) in the case of debt issues. Based on these findings, using a returns-based model would not allow us to disentangle conservatism effects from market price causes and consequences of issues.

Hence, we rely on Ball and Shivakumar (2005, 2006) for our primary measure for conditional conservatism. The method assumes that accruals asymmetrically recognize operating cash flow changes, as positive operating cash flows (good news) are reflected more gradually than negative operating cash flows (bad news). The role accruals play here in the timely recognition of economic gains and losses is distinctly different from that in mitigating noise in operating

cash flows (Dechow et al., 1998). In the former, the correlation between accruals and cash flows is positive under the premise that cash flows from an asset tend to be correlated over time. A change in current period's cash flows provides information that could serve as a basis for revisions of future cash flows, which are captured through accruals (an example would be a goodwill impairment charge). The latter role indicates a negative relationship between the two accounting variables, as accruals are used to mitigate transitory effects in operating cash flows that reverse over time (an example would be working capital movements), thereby producing smoother earnings. The model also accounts for other factors affecting accruals: changes in sales and the size of property, plant and equipment. The original Ball and Shivakumar model is as follows:

$$ACC_{it} = \alpha_0 + \alpha_1 \Delta SALES_{it} + \alpha_2 PPE_{it} + \alpha_3 DNEGCFO_{it} + \alpha_4 CFO_{it} + \alpha_5 DNEGCFO_{it} * CFO_{it} + \varepsilon_{it} (1)$$

where $ACC_{it}$ are total accruals – the difference between income before extraordinary items and operating cash flow – of firm $i$ in period $t$, $SALES_{it}$ are revenues; $PPE_{it}$ is gross property, plant and equipment; $DNEGCFO_{it}$ is an indicator variable, which takes the value of one in the case of negative fiscal-year operating cash flow and is otherwise zero; and $CFO_{it}$ is operating cash flow. All variables in the model, except the indicator variable, are scaled by beginning-of-year total assets. Additionally, we also include dummy variables for each SIC division in all regression models to capture the industry fixed effects in our analysis. It is important to note that, as panel data are used, we clustered the standard errors at both firm and year levels in our regression analyses to address the issue that the residuals in the sample may be correlated.

The slope coefficient $\alpha_4$ measures the timeliness of gain recognition and coefficient $\alpha_5$ measures the incremental timeliness of loss recognition. In case of conservatism the (combined) bad news slope coefficients $\alpha_4 + \alpha_5$ will be steeper

than the good news slope coefficient $\alpha_4$, i.e. $\alpha_5 > 0$. Our analysis mainly focuses on the incremental bad news slope coefficient $\alpha_5$; positive and significant values of $\alpha_5$ are interpreted as an indication of conservatism.

First, we investigate changes in conservatism in the period around debt and equity issuances by separately estimating an interaction regression model for debt and equity. We introduce an indicator variable *dDeal*, which corresponds to an issue in the respective model (i.e. it reflects a debt issue in the debt model and an equity placement in the equity model) in a five-year time window relative to the financial data. Thus, if we measure the contemporaneous relationship between accruals and a deal or issue, *dDeal* takes the value of one in case of an issue during *t0* and is zero otherwise. Likewise, if we measure the behavior of accruals in the year preceding an issue, *dDeal* takes the value of one in case of a deal during t+1 and is zero otherwise. The interaction variable *dDeal * dNegCFO * CFO* determines the additional effect of an issue on conservatism relative to non-issuing firms. Thus:

$$ACC_{it} = \alpha_0 + \alpha_1 \Delta Sales_{it} + \alpha_2 PPE_{it} + \alpha_3 dNegCFO_{it} + \alpha_4 CFO_{it} + \alpha_5 dNegCFO_{it} * CFO_{it} + \alpha_6 dDeal_i + \alpha_7 dDeal_i * \Delta Sales_{it} + \alpha_8 dDeal_i * PPE_{it} + \alpha_9 dDeal_i * dNegCFO_{it} + \alpha_{10} dDeal_i * CFO_{it} + \alpha_{11} dDeal_i * dNegCFO_{it} * CFO_{it} + \varepsilon_{it} \quad (2)$$

Increased conservatism in the period around an issue will be reflected by a positive value of the interaction coefficient $\alpha_{11}$. A positive value of the interaction coefficient $\alpha_{11}$ will indicate increased conservatism around a debt issue.

One can argue that there may also be a difference in the level of conservatism between public and private placements as private investors have shorter communication lines with management and receive information in ways other than through the financial statements (for instance, periodic investor reports, conference calls, company visits, board representation, etc.). To this end, we test whether there is a distinction between public and private deals, for both equity and

debt, in terms of firms' conservative accounting around such transactions. This is carried out by replacing the indicator variables *dDeal* with *dDealPrivate* and *dDealPublic* and adding associated interaction terms in the same manner. The model is written as:

$$ACC_{it} = \alpha_0 + \alpha_1 \Delta Sales_{it} + \alpha_2 PPE_{it} + \alpha_3 dNegCFO_{it} + \alpha_4 CFO_{it} + \alpha_5 dNegCFO_{it} * CFO_{it} + \alpha_6 dDealPrivate_i + \alpha_7 dDealPrivate_i * \Delta Sales_{it} + \alpha_8 dDealPrivate_i * PPE_{it} + \alpha_9 dDealPrivate_i * dNegCFO_{it} + \alpha_{10} dDealPrivate_i * CFO_{it} + \alpha_{11} dDealPrivate_i * dNegCFO_{it} * CFO_{it} + \alpha_{12} dDealPublic_i + \alpha_{13} dDealPublic_i * \Delta Sales_{it} + \alpha_{14} dDealPublic_i * PPE_{it} + \alpha_{15} dDealPublic_i * dNegCFO_{it} + \alpha_{16} dDealPublic_i * CFO_{it} + \alpha_{17} dDealPublic_i * dNegCFO_{it} * CFO_{it} + \varepsilon_{it} \quad (3)$$

In line with the aforementioned regression model(s), separate models are specified for equity and debt transactions with indicator variables representing private and public deals of the respective deal type in each equation. We then direct our attention to the coefficients on the interaction terms *dDealPrivate * dNegCFO * CFO* and *dDealPublic * dNegCFO * CFO* to analyze the impact of the issue types on conservatism.

Finally, we measure the temporal effects of equity and debt issues on conservatism, where we run our regressions for four different time periods – 1987 to 1997, 1998 to 2006, 2007 to 2009 and 2010 to 2015. The main focus here is to observe if firms' reporting behavior in the United States is affected by the financial crisis (as captured by the third sub-period) and how accounting conservatism changed, if at all, from the pre-crisis period (the second sub-period) to the years following the peak of the recent global economic downturn (the fourth sub-period).

### 3.3.2 Sample selection

The sample of US listed firms comprises non-financial firms covering fiscal years 1987 to 2015. To mitigate survivorship bias, the sample also includes currently

inactive firms. We collected accounting variables from WRDS / Compustat. We use Thomson One Banker / SDC for equity and debt issue data over the calendar years 1988 to 2013. Since we measure two-year pre-issue and post-issue effects, the fact that the financial data start (end) in the fiscal year 1987 (2015) while the deals data start (end) in the calendar year 1988 (2013) implies that there are more missing observations in the front-end and tail-end of the sample (for instance, there are no accounting data to measure conservatism in the two years leading up to issues in the fiscal year 1988) compared to the period in between. The firm and deals data were merged in the first instance on the basis of CUSIP codes and full company names. For those without direct CUSIP and / or full name links, we identified firms with the same tickers in the two databases and with partial name matches, which were then individually assessed and manually merged into the main dataset. Indicator variables were created to identify whether a firm issued debt or equity in each period of the specified time window. Moreover, to facilitate the private versus public deals analysis, dummy variables were also used to distinguish the two types of debt and equity issues. Firm-year observations are only acknowledged in the period that a firm is public and only if the accounting data are complete, i.e. all financial variables are available.

From our deals sample, we excluded those that are marked as "withdrawn", "shelf" and "registration." The number of issues is also adjusted for duplicate offerings in the sample. For example, a debt issue offered in two markets on the same day is shown as two separate records in our original data retrieval. Such an observation is counted only once in our dataset. Moreover, we did not distinguish multiple debt or multiple equity issues by firms in the same fiscal year; in such cases only information on the most recent deal is recorded. Convertible instruments were removed from our sample as these issues have both equity and debt characteristics; in any case there is only a relatively limited number of convertible deals in the sample. With regards to equity issues, we excluded Initial

Public Offerings from our analysis because the issues involved in the decision to go public – from accounting as well as disclosure aspects – may influence the results.

For the (accounting) variables that have no bounded minimum and maximum values, we plotted them in a scatter plot and removed the outliers from both top and bottom end of the dataset, as applicable, for our regression analysis.

## 3.4 Empirical results

In this section, we first discuss the descriptive characteristics of our sample as set out in Tables 3.1 to 3.3 (3.4.1), followed by an analysis of the Ball and Shivakumar regressions set out in Tables 3.4 to 3.6 (3.4.2). Finally, we describe several robustness checks in section 3.4.3.

### 3.4.1 Descriptive statistics

Table 3.1 presents the descriptive statistics of the regression variables for three groups of observations: the full sample, the debt issuing firms and the equity issuing firms.

Table 3.1, Panel A, shows that the median (mean) accruals are -0.05 (-0.04) for the total sample. As expected, they are negative due to the effect of the depreciation component. Revenues increase on average during the period by about 12% per year (median of 6%), while the average cash flow from operations generated by beginning total assets is 5% (median of 7%). In about 25% of the cases, cash flow from operations is negative. Property, plant and equipment represent about 57% of the balance sheet. The median (mean) value of the debt to asset ratio is 0.21 (0.27). In relation to deals data, the mean values of the dummies for debt and equity issues provide an indication of their frequencies. We see that debt issuers and equity issuers make up about 5.8% of the sample observations. It should be noted that we were able to match approximately 70% of the firms in the

## Table 3.1: Descriptives of regression variables

**Panel A: Total sample descriptive statistics**

| | # Obs | Mean | Median | 10th pct | 90th pct | Std.Dev. |
|---|---|---|---|---|---|---|
| ACC / TA $_{t-1}$ | 129,847 | -0.064 | -0.053 | -0.194 | 0.052 | 0.139 |
| Δ Sales / TA $_{t-1}$ | 129,847 | 0.119 | 0.059 | -0.149 | 0.442 | 0.335 |
| PPE / TA $_{t-1}$ | 129,847 | 0.569 | 0.453 | 0.089 | 1.199 | 0.457 |
| CFO / TA $_{t-1}$ | 129,847 | 0.045 | 0.071 | -0.144 | 0.207 | 0.183 |
| Total debt / TA $_{t-1}$ | 129,847 | 0.268 | 0.207 | 0.000 | 0.597 | 0.323 |
| dNegCFO | 129,847 | 0.249 | 0.000 | 0.000 | 1.000 | 0.432 |
| dDebt | 120,603 | 0.058 | 0.000 | 0.000 | 0.000 | 0.234 |
| dEquity | 120,603 | 0.058 | 0.000 | 0.000 | 0.000 | 0.234 |
| Ln (TA $_{t-1}$) | 129,847 | 5.496 | 5.327 | 2.597 | 8.621 | 2.320 |

**Panel B: Observations with deals in year t0**

*Panel B1: Total firm-year observations with deals*

| | Total debt issues | | | | | |
|---|---|---|---|---|---|---|
| | # Obs | Mean | Median | 10th pct | 90th pct | Std.Dev. |
| ACC / TA $_{t-1}$ | 6,986 | -0.059 | -0.052 | -0.139 | 0.010 | 0.085 |
| Δ Sales / TA $_{t-1}$ | 6,986 | 0.127 | 0.062 | -0.052 | 0.371 | 0.272 |
| PPE / TA $_{t-1}$ | 6,986 | 0.788 | 0.742 | 0.205 | 1.366 | 0.476 |
| CFO / TA $_{t-1}$ | 6,986 | 0.097 | 0.095 | 0.015 | 0.193 | 0.095 |
| Total debt / TA $_{t-1}$ | 6,986 | 0.465 | 0.388 | 0.189 | 0.783 | 0.383 |
| dNegCFO | 6,986 | 0.073 | 0.000 | 0.000 | 0.000 | 0.260 |
| dDebt | 6,986 | 7.922 | 7.930 | 5.719 | 10.118 | 1.702 |
| dEquity | 6,986 | -0.059 | -0.052 | -0.139 | 0.010 | 0.085 |
| Ln (TA $_{t-1}$) | 6,986 | 0.127 | 0.062 | -0.052 | 0.371 | 0.272 |

| | Total equity issues | | | | | |
|---|---|---|---|---|---|---|
| | # Obs | Mean | Median | 10th pct | 90th pct | Std.Dev. |
| ACC / TA $_{t-1}$ | 7,003 | -0.061 | -0.053 | -0.221 | 0.099 | 0.171 |
| Δ Sales / TA $_{t-1}$ | 7,003 | 0.259 | 0.137 | -0.058 | 0.759 | 0.441 |
| PPE / TA $_{t-1}$ | 7,003 | 0.635 | 0.492 | 0.107 | 1.331 | 0.516 |
| CFO / TA $_{t-1}$ | 7,003 | -0.029 | 0.055 | -0.437 | 0.219 | 0.274 |
| Total debt / TA $_{t-1}$ | 7,003 | 0.311 | 0.231 | 0.000 | 0.703 | 0.370 |
| dNegCFO | 7,003 | 0.371 | 0.000 | 0.000 | 1.000 | 0.483 |
| dDebt | 7,003 | 5.385 | 5.132 | 3.037 | 8.106 | 1.968 |
| dEquity | 7,003 | -0.061 | -0.053 | -0.221 | 0.099 | 0.171 |
| Ln (TA $_{t-1}$) | 7,003 | 0.259 | 0.137 | -0.058 | 0.759 | 0.441 |

*Panel B2: Breakdown by public and private issues*

| | Debt issues | | | | | |
|---|---|---|---|---|---|---|
| | Private issues | | | Public issues (incl. others) | | |
| | # Obs | Mean | Median | # Obs | Mean | Median |
| ACC / TA $_{t-1}$ | 3,260 | -0.062 | -0.055 | 3,726 | -0.055 | -0.051 |
| Δ Sales / TA $_{t-1}$ | 3,260 | 0.166 | 0.086 | 3,726 | 0.093 | 0.050 |
| PPE / TA $_{t-1}$ | 3,260 | 0.779 | 0.708 | 3,726 | 0.796 | 0.773 |
| CFO / TA $_{t-1}$ | 3,260 | 0.083 | 0.083 | 3,726 | 0.109 | 0.104 |
| Total debt / TA $_{t-1}$ | 3,260 | 0.536 | 0.429 | 3,726 | 0.404 | 0.362 |
| dNegCFO | 3,260 | 0.114 | 0.000 | 3,726 | 0.037 | 0.000 |
| Ln (TA $_{t-1}$) | 3,260 | 7.084 | 7.053 | 3,726 | 8.656 | 8.665 |

| | Total equity issues | | | | | |
|---|---|---|---|---|---|---|
| | Private issues | | | Public issues (incl. others) | | |
| | # Obs | Mean | Median | # Obs | Mean | Median |
| ACC / TA $_{t-1}$ | 1,247 | -0.114 | -0.082 | 5,756 | -0.049 | -0.048 |
| Δ Sales / TA $_{t-1}$ | 1,247 | 0.123 | 0.059 | 5,756 | 0.289 | 0.155 |
| PPE / TA $_{t-1}$ | 1,247 | 0.525 | 0.366 | 5,756 | 0.659 | 0.524 |
| CFO / TA $_{t-1}$ | 1,247 | -0.198 | -0.135 | 5,756 | 0.008 | 0.068 |
| Total debt / TA $_{t-1}$ | 1,247 | 0.242 | 0.117 | 5,756 | 0.326 | 0.261 |
| dNegCFO | 1,247 | 0.677 | 1.000 | 5,756 | 0.305 | 0.000 |
| Ln (TA $_{t-1}$) | 1,247 | 4.277 | 3.903 | 5,756 | 5.625 | 5.429 |

Notes:
*ACC* is total accruals (income before extraordinary items minus operating cash flow), Δ *Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *Total debt* is sum of short- and long-term debt, *dNegCFO* is an indicator variable set to 1 in the case of negative fiscal-year operating cash flow and is 0 otherwise, *TA* is total assets and Ln(*TA)* is the natural log of total assets. *ACC, ΔSALES, PPE, CFO* and *Total debt* are deflated by beginning total assets.

SDC database with those in Compustat. Furthermore, only one issue would be counted in case there are multiple deals by the same firm in a fiscal year and companies with deals but without available financial data were not included in the final sample.

The subsamples in Table 3.1- Panels B1 show that the descriptive characteristics of some of the variables differ considerably from those for the total sample. While the median sales growth of debt issuing firms is in line with the total sample, companies that raised equity grow at a much faster pace at 14%. This is to be expected given that equity offerings are often intended to finance growth opportunities. Furthermore, the fraction of property, plant and equipment in terms of total assets is substantially higher for debt-issuing firms than for the others,

while their profitability in terms of operating cash flows is also higher. A notable yet expected difference between the debt issuing and equity issuing subsamples is that about 7% of the former have negative operating cash flows in the fiscal year of the transaction compared to 37% of the latter. Finally, we find large deviations regarding the median total assets of the samples. The median size of the equity issuing firms is comparable with the total sample but the debt issuing firms are much larger. This is again not surprising as debt is a more common means of financing for more mature companies with assets that can serve as collateral as well as stronger and more stable cash flow profiles.

Table 3.1 – Panel B2 drills further down into the debt and equity issuing subsamples and presents the descriptive statistics of firms that raise funds in the respective private and public markets. Starting with the number of observations in the sample, we note that the distribution of private and public debt issuers is roughly evenly split while there are significantly more companies doing seasoned equity offerings in the public markets than those that raised funds through private placements. In terms of growth, borrowers in private markets exhibit more growth than those in public markets. The opposite is true, however, for the equity issuers. Contrary to all other subsamples, firms that utilize private placements in the equity market have negative cash flows as a percentage of total assets, implying that companies with the greatest cash needs (but not necessarily the highest growth) are limited to private funds as the main source of financing. Accruals are also notably more negative for this group of equity issuers

Given that the dataset spans more than 25 years, we show the same descriptive statistics of the different sub-periods mentioned in the previous section. If we compare the median figures in Table 3.2 – Panel A, the following trends can be identified. First, firms post more negative accruals during the crisis compared to the other periods, implying potentially more conservative accounting. Sales growth also the lowest during 2007 – 2009 before it recovers in the subsequent

## Table 3.2: Descriptive statistics per period

**Panel A: Descriptive statistics per sub-period**

| | Period 1: 1987 – 1996 | | | Period 2: 1997 – 2006 | | | Period 3: 2007 – 2009 | | | Period 4: 2010 - 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median |
| ACC / TA $_{t-1}$ | 50,511 | -0.053 | -0.047 | 44,947 | -0.070 | -0.056 | 12,172 | -0.084 | -0.065 | 22,217 | -0.065 | -0.054 |
| Δ Sales / TA $_{t-1}$ | 50,511 | 0.161 | 0.081 | 44,947 | 0.117 | 0.063 | 12,172 | 0.041 | 0.024 | 22,217 | 0.069 | 0.035 |
| PPE / TA $_{t-1}$ | 50,511 | 0.613 | 0.512 | 44,947 | 0.543 | 0.422 | 12,172 | 0.520 | 0.374 | 22,217 | 0.546 | 0.399 |
| CFO / TA $_{t-1}$ | 50,511 | 0.040 | 0.064 | 44,947 | 0.042 | 0.069 | 12,172 | 0.058 | 0.083 | 22,217 | 0.053 | 0.079 |
| Total debt / TA $_{t-1}$ | 50,511 | 0.289 | 0.234 | 44,947 | 0.261 | 0.192 | 12,172 | 0.236 | 0.170 | 22,217 | 0.252 | 0.189 |
| dNegCFO | 50,511 | 0.265 | 0.000 | 44,947 | 0.265 | 0.000 | 12,172 | 0.210 | 0.000 | 22,217 | 0.200 | 0.000 |
| dDebt | 49,100 | 0.053 | 0.000 | 44,947 | 0.054 | 0.000 | 12,172 | 0.056 | 0.000 | 14,384 | 0.088 | 0.000 |
| dEquity | 49,100 | 0.048 | 0.000 | 44,947 | 0.058 | 0.000 | 12,172 | 0.068 | 0.000 | 14,384 | 0.085 | 0.000 |
| Ln (TA $_{t-1}$) | 50,511 | 4.634 | 4.420 | 44,947 | 5.648 | 5.460 | 12,172 | 6.339 | 6.237 | 22,217 | 6.685 | 6.599 |

**Panel B: Descriptive statistics per sub-period of observations with deals in year t0**

*Panel B1: Breakdown by type of issues*

| | Period 1: 1987 – 1996 | | | Period 2: 1997 – 2006 | | | Period 3: 2007 - 2009 | | | Period 4: 2010 - 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median |
| *Debt issues* | | | | | | | | | | | | |
| ACC / TA $_{t-1}$ | 2,598 | -0.055 | -0.053 | 2,434 | -0.060 | -0.052 | 687 | -0.069 | -0.054 | 1,267 | -0.058 | -0.050 |
| Δ Sales / TA $_{t-1}$ | 2,598 | 0.153 | 0.077 | 2,434 | 0.146 | 0.072 | 687 | 0.039 | 0.024 | 1,267 | 0.084 | 0.043 |
| PPE / TA $_{t-1}$ | 2,598 | 0.830 | 0.791 | 2,434 | 0.771 | 0.716 | 687 | 0.744 | 0.717 | 1,267 | 0.758 | 0.686 |
| CFO / TA $_{t-1}$ | 2,598 | 0.090 | 0.093 | 2,434 | 0.093 | 0.091 | 687 | 0.117 | 0.106 | 1,267 | 0.107 | 0.100 |
| Total debt / TA $_{t-1}$ | 2,598 | 0.475 | 0.386 | 2,434 | 0.491 | 0.411 | 687 | 0.391 | 0.351 | 1,267 | 0.438 | 0.378 |
| dNegCFO | 2,598 | 0.088 | 0.000 | 2,434 | 0.088 | 0.000 | 687 | 0.028 | 0.000 | 1,267 | 0.038 | 0.000 |
| Ln (TA $_{t-1}$) | 2,598 | 7.257 | 7.236 | 2,434 | 7.991 | 7.925 | 687 | 8.811 | 8.750 | 1,267 | 8.674 | 8.605 |
| *Equity issues* | | | | | | | | | | | | |
| Accruals / TA $_{t-1}$ | 2,354 | -0.014 | -0.030 | 2,599 | -0.077 | -0.057 | 822 | -0.110 | -0.080 | 1,228 | -0.084 | -0.067 |
| Δ Sales / TA $_{t-1}$ | 2,354 | 0.409 | 0.257 | 2,599 | 0.246 | 0.140 | 822 | 0.082 | 0.037 | 1,228 | 0.121 | 0.051 |
| PPE / TA $_{t-1}$ | 2,354 | 0.703 | 0.570 | 2,599 | 0.595 | 0.437 | 822 | 0.598 | 0.458 | 1,228 | 0.611 | 0.436 |
| CFO / TA $_{t-1}$ | 2,354 | 0.028 | 0.072 | 2,599 | -0.034 | 0.050 | 822 | -0.077 | 0.042 | 1,228 | -0.096 | 0.033 |
| Total debt / TA $_{t-1}$ | 2,354 | 0.306 | 0.238 | 2,599 | 0.310 | 0.210 | 822 | 0.313 | 0.249 | 1,228 | 0.323 | 0.239 |
| dNegCFO | 2,354 | 0.299 | 0.000 | 2,599 | 0.386 | 0.000 | 822 | 0.408 | 0.000 | 1,228 | 0.452 | 0.000 |
| Ln (TA $_{t-1}$) | 2,354 | 4.963 | 4.722 | 2,599 | 5.497 | 5.289 | 822 | 5.803 | 5.556 | 1,228 | 5.679 | 5.410 |

**Table 3.2: Descriptive statistics per period (continued)**

*Panel B2: Breakdown private deals by sub-period*

| | Period 1: 1987 - 1996 | | | Period 2: 1997 - 2006 | | | Period 3: 2007 - 2009 | | | Period 4: 2010 - 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median |
| *Debt issues - private* | | | | | | | | | | | | |
| ACC / TA $_{t-1}$ | 1,244 | -0.055 | -0.051 | 1,275 | -0.064 | -0.056 | 244 | -0.078 | -0.057 | 497 | -0.068 | -0.057 |
| Δ Sales / TA $_{t-1}$ | 1,244 | 0.200 | 0.111 | 1,275 | 0.175 | 0.096 | 244 | 0.062 | 0.039 | 497 | 0.109 | 0.061 |
| PPE / TA $_{t-1}$ | 1,244 | 0.782 | 0.715 | 1,275 | 0.759 | 0.674 | 244 | 0.762 | 0.736 | 497 | 0.832 | 0.778 |
| CFO / TA $_{t-1}$ | 1,244 | 0.078 | 0.083 | 1,275 | 0.081 | 0.082 | 244 | 0.104 | 0.089 | 497 | 0.092 | 0.083 |
| Total debt / TA $_{t-1}$ | 1,244 | 0.519 | 0.402 | 1,275 | 0.562 | 0.455 | 244 | 0.462 | 0.416 | 497 | 0.549 | 0.476 |
| dNegCFO | 1,244 | 0.127 | 0.000 | 1,275 | 0.129 | 0.000 | 244 | 0.049 | 0.000 | 497 | 0.074 | 0.000 |
| Ln (TA $_{t-1}$) | 1,244 | 6.467 | 6.229 | 1,275 | 7.273 | 7.162 | 244 | 7.842 | 7.619 | 497 | 7.774 | 7.629 |
| *Equity issues - private* | | | | | | | | | | | | |
| ACC / TA $_{t-1}$ | 162 | -0.048 | -0.040 | 693 | -0.125 | -0.090 | 220 | -0.133 | -0.106 | 172 | -0.106 | -0.078 |
| Δ Sales / TA $_{t-1}$ | 162 | 0.214 | 0.102 | 693 | 0.132 | 0.060 | 220 | 0.086 | 0.042 | 172 | 0.050 | 0.027 |
| PPE / TA $_{t-1}$ | 162 | 0.625 | 0.543 | 693 | 0.485 | 0.327 | 220 | 0.490 | 0.314 | 172 | 0.636 | 0.437 |
| CFO / TA $_{t-1}$ | 162 | -0.100 | -0.005 | 693 | -0.211 | -0.176 | 220 | -0.237 | -0.174 | 172 | -0.189 | -0.069 |
| Total debt / TA $_{t-1}$ | 162 | 0.368 | 0.252 | 693 | 0.193 | 0.072 | 220 | 0.287 | 0.166 | 172 | 0.265 | 0.152 |
| dNegCFO | 162 | 0.512 | 1.000 | 693 | 0.714 | 1.000 | 220 | 0.709 | 1.000 | 172 | 0.640 | 1.000 |
| Ln (TA $_{t-1}$) | 162 | 4.813 | 4.130 | 693 | 4.014 | 3.816 | 220 | 4.499 | 4.091 | 172 | 4.550 | 4.089 |

**Table 3.2: Descriptive statistics per period (continued)**

*Panel B3: Breakdown public deals by sub-period*

| | Period 1: 1987 - 1996 | | | Period 2: 1997 - 2006 | | | Period 3: 2007 - 2009 | | | Period 4: 2010 - 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median | # Obs | Mean | Median |
| *Debt issues - public* | | | | | | | | | | | | |
| ACC / TA $_{t-1}$ | 1,354 | -0.056 | -0.054 | 1,159 | -0.055 | -0.049 | 443 | -0.064 | -0.054 | 770 | -0.051 | -0.046 |
| Δ Sales / TA $_{t-1}$ | 1,354 | 0.111 | 0.059 | 1,159 | 0.113 | 0.058 | 443 | 0.027 | 0.019 | 770 | 0.069 | 0.035 |
| PPE / TA $_{t-1}$ | 1,354 | 0.874 | 0.864 | 1,159 | 0.784 | 0.772 | 443 | 0.735 | 0.701 | 770 | 0.710 | 0.646 |
| CFO / TA $_{t-1}$ | 1,354 | 0.102 | 0.101 | 1,159 | 0.107 | 0.099 | 443 | 0.124 | 0.119 | 770 | 0.116 | 0.110 |
| Total debt / TA $_{t-1}$ | 1,354 | 0.434 | 0.374 | 1,159 | 0.412 | 0.379 | 443 | 0.352 | 0.320 | 770 | 0.367 | 0.336 |
| dNegCFO | 1,354 | 0.052 | 0.000 | 1,159 | 0.043 | 0.000 | 443 | 0.016 | 0.000 | 770 | 0.014 | 0.000 |
| Ln (TA $_{t-1}$) | 1,354 | 7.983 | 8.025 | 1,159 | 8.781 | 8.813 | 443 | 9.344 | 9.289 | 770 | 9.254 | 9.107 |
| *Equity issues - public* | | | | | | | | | | | | |
| ACC / TA $_{t-1}$ | 2,192 | -0.011 | -0.029 | 1,906 | -0.059 | -0.048 | 602 | -0.102 | -0.074 | 1,056 | -0.080 | -0.064 |
| Δ Sales / TA $_{t-1}$ | 2,192 | 0.423 | 0.271 | 1,906 | 0.287 | 0.167 | 602 | 0.081 | 0.037 | 1,056 | 0.133 | 0.053 |
| PPE / TA $_{t-1}$ | 2,192 | 0.709 | 0.572 | 1,906 | 0.636 | 0.488 | 602 | 0.638 | 0.542 | 1,056 | 0.607 | 0.435 |
| CFO / TA $_{t-1}$ | 2,192 | 0.038 | 0.075 | 1,906 | 0.030 | 0.073 | 602 | -0.018 | 0.062 | 1,056 | -0.080 | 0.045 |
| Total debt / TA $_{t-1}$ | 2,192 | 0.301 | 0.237 | 1,906 | 0.353 | 0.282 | 602 | 0.323 | 0.283 | 1,056 | 0.332 | 0.259 |
| dNegCFO | 2,192 | 0.283 | 0.000 | 1,906 | 0.267 | 0.000 | 602 | 0.297 | 0.000 | 1,056 | 0.421 | 0.000 |
| Ln (TA $_{t-1}$) | 2,192 | 4.974 | 4.760 | 1,906 | 6.036 | 5.863 | 602 | 6.280 | 6.263 | 1,056 | 5.863 | 5.718 |

Notes: *ACC* is total accruals (income before extraordinary items minus operating cash flow), Δ *Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *Total debt* is sum of short- and long-term debt, *dNegCFO* is an indicator variable set to 1 in the case of negative fiscal-year operating cash flow and is 0 otherwise, *TA* is total assets and Ln(*TA)* is the natural log of total assets. *ACC*, *ΔSALES*, *PPE*, *CFO* and *Total debt* are deflated by beginning total assets.

period. Interestingly, the tangible fixed assets appear to decrease over time while firm size actually increases. The financial crisis does not have an adverse impact on cash flows of the US firms; on the contrary, the opposite seems to be the case as seen from the increasing ratio of cash flows to total assets (despite the fact that the asset base in fact increases over the years) and the declining number of firms with negative cash flows from period 1 to period 4 (from 27% to 20%, respectively). Another notable observation is that, while the number of issuers increases over time (both debt and equity issuers make up roughly 9% of the total number of companies in the post-crisis period compared to 5-6% before), significantly more firms turn to the debt markets for additional funding after the crisis, most likely spurred by the low interest rates following the quantitative easing in the United States.

Breaking down the sample into debt and equity issuing subsamples provides additional insights. In Table 3.2 – Panel B1, we see that the increase in negative accruals is especially the case for equity issuers while the improving cash flow ratio of the total sample is not observed in the subsample of firms with secondary share offerings. When we look at the breakdown of deals by sub-period in Table 3.2 – Panels B2 and B3, one observation is that the number of deals drops sharply during the crisis with the public markets becoming relatively more prevalent for debt issuers. Furthermore, the only group of issuers with average negative cash flows across all periods are those that raised equity in private markets. This suggests that private equity serves as the main source of funding for firms that are in distress

Table 3.3 shows the frequency of debt and (seasoned) equity issues over the years 1988 to 2013. While the total number of debt and equity issues over the whole period does not substantially differ (19,071 and 18,349 deals, respectively,

## Table 3.3: Debt and equity issues from 1988-2013

**Panel A: Summary of deals data per fiscal year**

| Fiscal year | # of deals retrieved from SDC (as-is) | | # of deals from SDC that could be matched with firms in Compustat | | # of matchable and clean deals | |
|---|---|---|---|---|---|---|
| | Debt | Equity | Debt | Equity | Debt | Equity |
| 1988 | 860 | 168 | 531 | 108 | - | - |
| 1989 | 708 | 250 | 495 | 182 | 88 | 99 |
| 1990 | 697 | 209 | 487 | 150 | 87 | 103 |
| 1991 | 923 | 506 | 632 | 363 | 116 | 236 |
| 1992 | 903 | 489 | 567 | 358 | 101 | 224 |
| 1993 | 1,126 | 664 | 702 | 456 | 180 | 307 |
| 1994 | 696 | 487 | 454 | 341 | 122 | 236 |
| 1995 | 869 | 611 | 600 | 460 | 160 | 271 |
| 1996 | 952 | 727 | 664 | 529 | 158 | 355 |
| 1997 | 1,292 | 695 | 895 | 536 | 202 | 297 |
| 1998 | 1,410 | 547 | 1,023 | 448 | 233 | 223 |
| 1999 | 856 | 457 | 652 | 361 | 180 | 173 |
| 2000 | 591 | 456 | 454 | 365 | 69 | 135 |
| 2001 | 799 | 589 | 661 | 444 | 173 | 182 |
| 2002 | 684 | 577 | 530 | 428 | 107 | 172 |
| 2003 | 691 | 717 | 548 | 541 | 162 | 147 |
| 2004 | 577 | 878 | 471 | 629 | 121 | 198 |
| 2005 | 462 | 673 | 377 | 473 | 100 | 103 |
| 2006 | 431 | 825 | 357 | 542 | 111 | 120 |
| 2007 | 441 | 917 | 347 | 545 | 103 | 103 |
| 2008 | 316 | 865 | 257 | 356 | 66 | 53 |
| 2009 | 481 | 1,105 | 404 | 703 | 107 | 152 |
| 2010 | 520 | 1,261 | 444 | 679 | 126 | 87 |
| 2011 | 489 | 1,307 | 415 | 641 | 87 | 64 |
| 2012 | 676 | 1,187 | 590 | 690 | 123 | 49 |
| 2013 | 621 | 1,182 | 540 | 799 | - | - |
| Total | 19,071 | 18,349 | 14,097 | 12,127 | 3,082 | 4,089 |

Source: Thomson One Banker / SDC

Notes: Firms included in the sample are US-based, non-financial, public companies. Years reported are calendar years; issue indicator variables in the regression analysis are on a fiscal year basis. Withdrawn, registration and shelf issues are excluded. This overview has been adjusted for duplicate issues in the sample (e.g. a debt issue offered in two markets on the same day is shown as two separate records in our data retrieval). Equity issues only include secondary offerings, i.e. IPOs and convertible issues are excluded. A clean deal is defined as an issue that is the only one of its type (i.e. debt or equity) in the period $\pm$1 year around year t0.

**Table 3.3: Debt and equity issues from 1988-2013 (continued)**

**Panel B: Summary of issuers per fiscal year**

| Fiscal year | # firms with available deals data* | # firms with at least one offering during the year | | % of firms with offering | |
|---|---|---|---|---|---|
| | | Debt | Equity | Debt | Equity |
| 1988 | 4,526 | 209 | 66 | 4.6% | 1.5% |
| 1989 | 6,234 | 240 | 161 | 3.8% | 2.6% |
| 1990 | 6,258 | 229 | 135 | 3.7% | 2.2% |
| 1991 | 6,425 | 265 | 302 | 4.1% | 4.7% |
| 1992 | 6,779 | 275 | 318 | 4.1% | 4.7% |
| 1993 | 7,556 | 345 | 398 | 4.6% | 5.3% |
| 1994 | 7,973 | 255 | 320 | 3.2% | 4.0% |
| 1995 | 8,143 | 321 | 387 | 3.9% | 4.8% |
| 1996 | 8,673 | 342 | 491 | 3.9% | 5.7% |
| 1997 | 8,732 | 425 | 436 | 4.9% | 5.0% |
| 1998 | 8,362 | 468 | 334 | 5.6% | 4.0% |
| 1999 | 8,119 | 365 | 307 | 4.5% | 3.8% |
| 2000 | 7,910 | 227 | 301 | 2.9% | 3.8% |
| 2001 | 7,274 | 361 | 349 | 5.0% | 4.8% |
| 2002 | 6,872 | 300 | 349 | 4.4% | 5.1% |
| 2003 | 6,622 | 362 | 424 | 5.5% | 6.4% |
| 2004 | 6,621 | 302 | 482 | 4.6% | 7.3% |
| 2005 | 6,598 | 249 | 361 | 3.8% | 5.5% |
| 2006 | 6,691 | 271 | 405 | 4.1% | 6.1% |
| 2007 | 6,848 | 248 | 392 | 3.6% | 5.7% |
| 2008 | 6,624 | 193 | 232 | 2.9% | 3.5% |
| 2009 | 6,419 | 307 | 452 | 4.8% | 7.0% |
| 2010 | 6,453 | 352 | 416 | 5.5% | 6.4% |
| 2011 | 6,555 | 318 | 411 | 4.9% | 6.3% |
| 2012 | 6,515 | 433 | 420 | 6.6% | 6.4% |
| 2013 | 6,052 | 366 | 499 | 6.0% | 8.2% |

Note: Our deals data include issues from 1 Jan 1988 until 31 December 2013. The numbers of firms in the fiscal year 1988 and 2013 in the above table have been adjusted for the fact that some companies' fiscal years include (part) of 1987 and of 2014, for which we do not have deals data.

74% and 66% of which we are able to match the issuers with firms in the financial database), the popularity of debt versus equity changed over different time spans. In the late 80s and early 90s, companies issued more debt than equity by roughly two-to-one. A clear trend is, however, that equity issues became more and more

prevalent over time. The number of equity deals exceeded that of debt in 2003 and by the last year of our sample equity issues make up 60% of the total deals.

Since a company may have multiple issues within a window of two or three consecutive fiscal years, it could be difficult to isolate the effects of such deals on conservatism in a given year. To this end, we also identify the so-called "clean deals", which are defined as debt and equity offerings that represent the only issues of their kind (i.e. either debt or equity) by the issuers within a period of one year around the corresponding fiscal year. For instance, if a company has a debt offering in year t0, the dummy variable indicating a clean debt deal for that company in that year would be assigned a value of one if that debt issue is the only debt deal in the period t-1 to t+1. The last two columns in Table 3.3 – Panel A show that there are significantly fewer clean deals, as one would expect, and that equity is generally more prevalent than debt in the earlier years rather than the later years on a clean deal basis.

### 3.4.2 Regression results

The next tables present results of our regression analyses according to equations (1) to (3). We start with the results of the original Ball and Shivakumar model in Table 3.4, column (1). Columns (2) to (6) then show the regressions including the equity deal indicator and interaction variables. If firms were to report conservatively in the years leading up to equity issues, this would be observed in columns (2) and (3); in the former, the *dDeal* dummy indicates an equity deal two years after the financial variables. Likewise, if conservatism follows secondary offerings, the results should appear in columns (5) and (6), in which *dDeal* indicates equity issues in the one and two years prior to the accounting data. Column (4) presents the contemporaneous relationship between accruals and equity issues in the same year. The results of the debt deal regressions are displayed in columns (7) to (11) and the same interpretation applies. It should be

noted as well that we actually analyzed a time span of seven years although we do not show the years *t-3* and *t+3* in the tables. The results for those years are not different from the years *t-2* and *t+2* and are mostly insignificant.

For the base model, column (1) shows that the coefficient of *ΔSALES* is significantly positive, as one might expect since increasing sales will positively influence the working capital component of accruals. *PPE* are significantly negative related to accruals as higher capital investments will increase the depreciation component of accruals. Cash flows are negatively correlated with accruals since accrual accounting is meant to mitigate the effects of noise in operating cash flows on income. Crucially, the coefficient of the conservatism variable *dNegCFO*CFO* is positive and highly significant. This is the main conservatism effect, which implies that bad news (negative cash flows) is recognized more timely in accruals than good news (positive cash flows).

We then investigate how firms report in the period beginning two years preceding, and ending two years following, the year of debt and equity issue. The significantly positive coefficients on the variable *dDeal *dNegCFO * CFO* in columns (2) to (5) indicate that conservatism increases in the years around – especially before – equity deals for issuing firms relative to non-issuing ones. This supports the view that timely recognition of economic losses functions as a way for issuers to enhance earnings quality and address the demand for conservatism by (outside) investors (e.g., for improved compensation, governance contracting and mitigation of information asymmetry between firm insiders and outside shareholders).

Conversely, we do not observe any significant effect of debt deals on conservatism in any period. This indicates a lack of demand for conservatism by debt providers, which could be because the already strong cash flows of debt issuers (relative to firms that raised new equity financing) reduce the importance

**Table 3.4: The relation between conservatism and deals**

| | Main model | Equity issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ |
| ΔSales/TA $_{t-1}$ | 0.0923*** | 0.0954*** | 0.0939*** | 0.0914*** | 0.0932*** | 0.0926*** |
| | (0.00439) | (0.00441) | (0.00426) | (0.00429) | (0.00463) | (0.00503) |
| PPE /TA $_{t-1}$ | -0.0167*** | -0.0161*** | -0.0166*** | -0.0167*** | -0.0176*** | -0.0177*** |
| | (0.00267) | (0.00281) | (0.00287) | (0.00287) | (0.00282) | (0.00267) |
| dNegCFO | -0.00764* | -0.00609 | -0.00570 | -0.00759 | -0.00703 | -0.00897** |
| | (0.00456) | (0.00462) | (0.00469) | (0.00469) | (0.00446) | (0.00443) |
| CFO /TA $_{t-1}$ | -0.413*** | -0.419*** | -0.415*** | -0.413*** | -0.407*** | -0.406*** |
| | (0.0161) | (0.0162) | (0.0155) | (0.0153) | (0.0163) | (0.0171) |
| dNegCFO X CFO/TA $_{t-1}$ | 0.487*** | 0.482*** | 0.477*** | 0.476*** | 0.476*** | 0.483*** |
| | (0.0176) | (0.0199) | (0.0193) | (0.0198) | (0.0188) | (0.0195) |
| dDeal | | 0.00802* | 0.00879** | 0.0102* | 0.00443 | -0.00450 |
| | | (0.00470) | (0.00405) | (0.00572) | (0.00463) | (0.00400) |
| ΔSales/TA $_{t-1}$ X dDeal | | 0.00207 | 0.0214*** | 0.0335*** | 0.00742 | 0.00521 |
| | | (0.00938) | (0.00815) | (0.00888) | (0.00995) | (0.0121) |
| PPE/TA $_{t-1}$ X dDeal | | 0.00266 | -0.00101 | -0.00580 | 0.00437 | 0.00407 |
| | | (0.00497) | (0.00601) | (0.00430) | (0.00346) | (0.00355) |
| dNegCFO X dDeal | | -0.0354*** | -0.0414*** | -0.0224** | -0.0446*** | -0.0318*** |
| | | (0.00833) | (0.00795) | (0.00923) | (0.00753) | (0.00789) |
| CFO/TA $_{t-1}$ X dDeal | | -0.143*** | -0.162*** | -0.100** | -0.110*** | -0.0627* |
| | | (0.0371) | (0.0360) | (0.0398) | (0.0254) | (0.0368) |
| dNegCFO X CFO/TA $_{t-1}$ X dDeal | | 0.164*** | 0.173*** | 0.131*** | 0.0901** | 0.0472 |
| | | (0.0480) | (0.0405) | (0.0493) | (0.0428) | (0.0493) |
| Observations | 129,847 | 114,689 | 118,379 | 120,603 | 119,650 | 118,926 |
| R-squared | 12.3% | 12.9% | 12.8% | 12.7% | 12.3% | 12.1% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 3.4: The relation between conservatism and deals (continued)**

| | Debt issues | | | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (7) | (8) | (9) | (10) | (11) |
| VARIABLES | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ |
| ΔSales/TA $_{t-1}$ | 0.0969*** | 0.0968*** | 0.0965*** | 0.0948*** | 0.0936*** |
| | (0.00443) | (0.00435) | (0.00441) | (0.00457) | (0.00496) |
| PPE /TA $_{t-1}$ | -0.0163*** | -0.0166*** | -0.0169*** | -0.0171*** | -0.0172*** |
| | (0.00301) | (0.00291) | (0.00284) | (0.00286) | (0.00281) |
| dNegCFO | -0.00718 | -0.00727 | -0.00802* | -0.00933** | -0.0106** |
| | (0.00497) | (0.00487) | (0.00475) | (0.00463) | (0.00461) |
| CFO /TA $_{t-1}$ | -0.424*** | -0.421*** | -0.418*** | -0.413*** | -0.409*** |
| | (0.0158) | (0.0155) | (0.0161) | (0.0163) | (0.0170) |
| dNegCFO X CFO/TA $_{t-1}$ | 0.493*** | 0.490*** | 0.491*** | 0.485*** | 0.487*** |
| | (0.0181) | (0.0177) | (0.0180) | (0.0189) | (0.0195) |
| dDeal | 0.0213*** | 0.0301*** | 0.0239*** | 0.0167*** | 0.0145*** |
| | (0.00408) | (0.00368) | (0.00255) | (0.00347) | (0.00323) |
| ΔSales/TA $_{t-1}$ X dDeal | -0.0460*** | -0.0599*** | -0.0611*** | -0.0558*** | -0.0267*** |
| | (0.00793) | (0.00725) | (0.00582) | (0.00615) | (0.00960) |
| PPE/TA $_{t-1}$ X dDeal | -0.00134 | -0.0107*** | -0.0100** | -0.00568 | -0.00696 |
| | (0.00385) | (0.00404) | (0.00394) | (0.00363) | (0.00536) |
| dNegCFO X dDeal | 0.0226 | 0.0429*** | 0.0268** | 0.0112 | 0.0202*** |
| | (0.0174) | (0.0104) | (0.0126) | (0.00901) | (0.00751) |
| CFO/TA $_{t-1}$ X dDeal | -0.0111 | -0.00518 | 0.00853 | 0.0200 | 0.0257 |
| | (0.0262) | (0.0261) | (0.0223) | (0.0255) | (0.0264) |
| dNegCFO X CFO/TA $_{t-1}$ X dDeal | -0.0419 | -0.0299 | -0.0530 | -0.0206 | -0.0942 |
| | (0.260) | (0.121) | (0.147) | (0.127) | (0.0961) |
| Observations | 114,689 | 118,379 | 120,603 | 119,650 | 118,926 |
| R-squared | 12.9% | 12.8% | 12.7% | 12.3% | 12.1% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ACC* is accruals (income before

extraordinary items minus operating cash flow), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDeal* is an indicator variable for an equity or debt issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

of conservatism as a tool to address the debt contracting efficiency / agency problems.

The regressions in Table 3.5 go a level deeper and consider a distinction between public and private issues for both debt and equity. One observation is that the main effect (i.e. significant and positive coefficient on the variable *dNegCFO * CFO* indicating more timely recognition of bad news in accruals compared to good news) is present in all columns. The key additional insight here is that the aforementioned increase in conservatism in the equity-issuing sample is driven by public deals, as seen in the significantly positive coefficients on the variable *dDealPublic * dNegCFO * CFO* in models (1) to (4). The size of the coefficients also indicates that conservative reporting tends to lead, rather than follow, equity fundraisings in the public markets. It is interesting to see that bad news is not reflected more timely in accruals around the issue of private equity deals. The lack of conservatism in private deals, in our view, could be because investors in private placements are typically already familiar with the issuers. With regards to the impact debt issues on firms' reporting behavior, there appear to be significant but weaker results indicating *less* conservatism for firms that raised funds in the public markets compared to non-issuers.

Performing the same regression analyses in different time periods provides further insights into how the relationship between fundraising and conservatism changes over time. The results are shown in Table 3.6, where the coefficients of the key variables of interest (i.e. *dNegCFO * CFO* and *dDeal * dNegCFO * CFO*, which captures the main conservatism effect and the incremental effect of deals, respectively) in the specified sub-periods are summarised. Again, the main effects are observed in all models, i.e. economic negative cash flows are recognised more timely as accruals. When we compare the outcomes of the various sub-periods in columns (2) to (6), we notice increased conservatism by equity issuers in the late 80s to late 90s period, both pre- and post-deal. In the 2000s before the financial

## Table 3.5: The relation between conservatism and public and private deals

| | Equity issues | | | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| Δ Sales/TA $_{t-1}$ | 0.0954*** | 0.0939*** | 0.0914*** | 0.0932*** | 0.0926*** |
| | (0.00441) | (0.00426) | (0.00429) | (0.00463) | (0.00503) |
| PP&E /TA $_{t-1}$ | -0.0161*** | -0.0166*** | -0.0167*** | -0.0176*** | -0.0177*** |
| | (0.00281) | (0.00287) | (0.00287) | (0.00282) | (0.00267) |
| dNegCFO | -0.00610 | -0.00571 | -0.00761 | -0.00704 | -0.00897** |
| | (0.00462) | (0.00469) | (0.00470) | (0.00446) | (0.00443) |
| CFO /TA $_{t-1}$ | -0.419*** | -0.415*** | -0.413*** | -0.407*** | -0.406*** |
| | (0.0162) | (0.0155) | (0.0153) | (0.0163) | (0.0171) |
| dNegCFO X CFO/TA $_{t-1}$ | 0.482*** | 0.477*** | 0.476*** | 0.477*** | 0.483*** |
| | (0.0199) | (0.0193) | (0.0198) | (0.0188) | (0.0195) |
| dDealPrivate | -0.0348** | -0.0410*** | -0.0493*** | -0.0297** | -0.0188* |
| | (0.0143) | (0.0122) | (0.0172) | (0.0151) | (0.0112) |
| Δ Sales/TA $_{t-1}$ X dDealPrivate | -0.0157 | -0.0130 | 0.0102 | -0.00774 | 0.0184 |
| | (0.0257) | (0.0186) | (0.0217) | (0.0244) | (0.0263) |
| PP&E/TA $_{t-1}$ X dDealPrivate | -0.0148 | 0.00378 | 0.0140 | 0.00514 | 0.00376 |
| | (0.0153) | (0.0149) | (0.0153) | (0.0129) | (0.00956) |
| dNegCFO X dDealPrivate | -0.0292 | -0.0470*** | -0.0284 | -0.0491*** | -0.0469*** |
| | (0.0202) | (0.0132) | (0.0197) | (0.0170) | (0.0150) |
| CFO/TA $_{t-1}$ X dDealPrivate | 0.0683 | -0.0419 | 0.00560 | -0.0426 | -0.0756 |
| | (0.107) | (0.0781) | (0.120) | (0.0984) | (0.116) |
| dNegCFO X CFO/TA $_{t-1}$ X | -0.115 | -0.0353 | -0.0157 | -0.0227 | 0.0370 |
| | (0.0970) | (0.0811) | (0.123) | (0.113) | (0.124) |
| dDealPublic | 0.0130** | 0.0155*** | 0.0187*** | 0.00823* | -0.00315 |
| | (0.00521) | (0.00508) | (0.00605) | (0.00469) | (0.00395) |
| Δ Sales/TA $_{t-1}$ X dDealPublic | 0.00486 | 0.0230*** | 0.0292*** | 0.00806 | 0.00183 |
| | (0.00846) | (0.00888) | (0.00913) | (0.00928) | (0.0122) |
| PP&E/TA $_{t-1}$ X dDealPublic | 0.00450 | -0.00233 | -0.00939** | 0.00542 | 0.00494 |
| | (0.00475) | (0.00511) | (0.00424) | (0.00387) | (0.00420) |
| dNegCFO X dDealPublic | -0.0229** | -0.0230*** | -0.00627 | -0.0365*** | -0.0242** |
| | (0.00961) | (0.00884) | (0.0124) | (0.00833) | (0.00941) |
| CFO/TA $_{t-1}$ X dDealPublic | -0.166*** | -0.176*** | -0.105*** | -0.122*** | -0.0598** |
| | (0.0399) | (0.0364) | (0.0407) | (0.0229) | (0.0267) |
| dNegCFO X CFO/TA $_{t-1}$ X | 0.212*** | 0.223*** | 0.136*** | 0.107*** | 0.0399 |
| | (0.0503) | (0.0414) | (0.0475) | (0.0403) | (0.0397) |
| Observations | 114,689 | 118,379 | 120,603 | 119,650 | 118,926 |
| R-squared | 13.0% | 12.8% | 12.8% | 12.3% | 12.1% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 3.5: The relation between conservatism and public and private deals (continued)**

| | Debt issues | | | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| Δ Sales/TA $_{t-1}$ | 0.0969*** | 0.0968*** | 0.0965*** | 0.0948*** | 0.0936*** |
| | (0.00443) | (0.00435) | (0.00441) | (0.00457) | (0.00496) |
| PP&E /TA $_{t-1}$ | -0.0163*** | -0.0166*** | -0.0169*** | -0.0171*** | -0.0172*** |
| | (0.00302) | (0.00291) | (0.00285) | (0.00286) | (0.00281) |
| dNegCFO | -0.00718 | -0.00728 | -0.00803* | -0.00934** | -0.0107** |
| | (0.00497) | (0.00487) | (0.00476) | (0.00463) | (0.00461) |
| CFO /TA $_{t-1}$ | -0.424*** | -0.421*** | -0.418*** | -0.413*** | -0.409*** |
| | (0.0158) | (0.0154) | (0.0160) | (0.0163) | (0.0170) |
| dNegCFO X CFO/TA $_{t-1}$ | 0.493*** | 0.490*** | 0.491*** | 0.485*** | 0.487*** |
| | (0.0181) | (0.0177) | (0.0180) | (0.0189) | (0.0195) |
| dDealPrivate | 0.0139*** | 0.0283*** | 0.0199*** | 0.0131*** | 0.00847** |
| | (0.00539) | (0.00501) | (0.00368) | (0.00352) | (0.00413) |
| Δ Sales/TA $_{t-1}$ X dDealPrivate | -0.0355*** | -0.0518*** | -0.0512*** | -0.0485*** | -0.00890 |
| | (0.0109) | (0.00913) | (0.00803) | (0.00873) | (0.0111) |
| PP&E/TA $_{t-1}$ X dDealPrivate | 0.00153 | -0.0142** | -0.0113** | -0.00946** | -0.00962 |
| | (0.00617) | (0.00642) | (0.00566) | (0.00460) | (0.00674) |
| dNegCFO X dDealPrivate | 0.0154 | 0.0441*** | 0.0225 | 0.00601 | 0.0194* |
| | (0.0211) | (0.0111) | (0.0148) | (0.0101) | (0.0104) |
| CFO/TA $_{t-1}$ X dDealPrivate | -0.0472 | -0.0369 | -0.0326 | -0.00211 | 0.0168 |
| | (0.0415) | (0.0381) | (0.0305) | (0.0373) | (0.0317) |
| dNegCFO X CFO/TA $_{t-1}$ X | 0.0973 | 0.0938 | 0.0193 | 0.0860 | -0.0309 |
| | (0.293) | (0.103) | (0.162) | (0.112) | (0.119) |
| dDealPublic | 0.0264*** | 0.0301*** | 0.0254*** | 0.0198*** | 0.0206*** |
| | (0.00430) | (0.00390) | (0.00328) | (0.00479) | (0.00369) |
| Δ Sales/TA $_{t-1}$ X dDealPublic | -0.0640*** | -0.0670*** | -0.0737*** | -0.0606*** | -0.0430*** |
| | (0.00868) | (0.00736) | (0.00648) | (0.00810) | (0.0123) |
| PP&E/TA $_{t-1}$ X dDealPublic | -0.00303 | -0.00648* | -0.00707** | -0.00145 | -0.00423 |
| | (0.00336) | (0.00362) | (0.00318) | (0.00387) | (0.00555) |
| dNegCFO X dDealPublic | 0.0318 | 0.0391* | 0.0283 | 0.0167 | 0.0255 |
| | (0.0204) | (0.0214) | (0.0188) | (0.0191) | (0.0165) |
| CFO/TA $_{t-1}$ X dDealPublic | 0.0194 | 0.0166 | 0.0388 | 0.0234 | 0.0146 |
| | (0.0283) | (0.0254) | (0.0284) | (0.0372) | (0.0326) |
| dNegCFO X CFO/TA $_{t-1}$ X | -0.698** | -0.461 | -0.459** | -0.494* | -0.259 |
| | (0.333) | (0.352) | (0.193) | (0.272) | (0.203) |
| Observations | 114,689 | 118,379 | 120,603 | 119,650 | 118,926 |
| R-squared | 13.0% | 12.8% | 12.8% | 12.3% | 12.1% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.

Notes: OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ACC* is accruals (income before extraordinary items minus operating cash flow), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDealPrivate* (*dDealPublic*) is an indicator variable for an equity or debt issue in the private (public) markets, respectively, during the fiscal year. All variables are deflated by

beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

crisis, equity issuers no longer exhibited conservative accruals behaviors. Pre-deal conservatism reappears during the crisis and remains in the period thereafter, as evidenced by the positive and significant coefficients of the variable *dDeal * dNegCFO * CFO* in models (2) and (3). In contrast to equity-issuing firms, debt issuers exhibit less clear patterns as the results in columns (7) to (11) seem to indicate less conservatism in the period immediately before and in the same period as the deal.

Consistent with the previous table, the equity results above are driven by public issuers (not tabulated). However, we put less reliance on the private-public distinction here because the number of deals during the crisis and post-crisis periods are significantly fewer (especially in the private deal samples as shown in Table 3.2 – Panel B). It could therefore be that the outcomes are influenced by a small number of firms.

### 3.4.3 Robustness checks

In addition to our main analyses, we conduct the following robustness checks. First, we use an alternative conservatism measure in addition to the Ball and Shivakumar model. As explained earlier, we deem the Basu (1997) model to be inappropriate because of the security price effects of new issues. Our alternative measure, however, modifies the Basu (1997) model. It incorporates Basu's prediction of negative earnings changes having a greater tendency than positive earnings changes to reverse. From a time-series viewpoint, any bad news reflected in current earnings will appear as a transitory shock in earnings. Conversely, the effects of a current positive shock will be spread over several future periods' earnings as anticipated gains are realized. The regression model below measures

**Table 3.6: Summary of relations between conservatism and deals by period**

| | | Main model | Equity issues | | | | |
|---|---|---|---|---|---|---|---|
| | | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PERIOD | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| dNegCFO X CFO/TA $_{t-1}$ | 1987 - 1997 | 0.525*** | 0.517*** | 0.516*** | 0.522*** | 0.522*** | 0.542*** |
| dNegCFO X CFO/TA $_{t-1}$ | 1998 - 2006 | 0.480*** | 0.476*** | 0.475*** | 0.472*** | 0.481*** | 0.482*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2007 - 2009 | 0.389*** | 0.377*** | 0.358*** | 0.353*** | 0.373*** | 0.367*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2010 - 2015 | 0.413*** | 0.389*** | 0.397*** | 0.413*** | 0.393*** | 0.416*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1987 - 1997 | | 0.220** | 0.199*** | 0.178** | 0.221*** | 0.159*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1998 - 2006 | | 0.0594 | 0.0451 | 0.0420 | 0.00695 | 0.0113 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2007 - 2009 | | 0.153*** | 0.432*** | 0.0375 | 0.229 | 0.214 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2010 - 2015 | | 0.295*** | 0.0531*** | -0.0625 | -0.00449 | -0.0726*** |
| Observations | 1987 - 1997 | 50,511 | 50,511 | 50,511 | 49,100 | 44,472 | 39,977 |
| Observations | 1998 - 2006 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 |
| Observations | 2007 - 2009 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 |
| Observations | 2010 - 2015 | 22,217 | 7,059 | 10,749 | 14,384 | 18,059 | 21,830 |
| R-squared | 1987 - 1997 | 16.7% | 16.8% | 16.8% | 17.1% | 16.7% | 17.0% |
| R-squared | 1998 - 2006 | 10.3% | 10.4% | 10.5% | 10.4% | 10.4% | 10.4% |
| R-squared | 2007 - 2009 | 8.0% | 8.4% | 8.6% | 8.5% | 8.4% | 8.4% |
| R-squared | 2010 - 2015 | 9.5% | 12.6% | 12.0% | 11.0% | 10.4% | 10.0% |

*** p<0.01, ** p<0.05, * p<0.1

**Table 3.6: Summary of relations between conservatism and deals by period (continued)**

| | | Debt issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | | (7) | (8) | (9) | (10) | (11) |
| VARIABLES | PERIOD | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| dNegCFO X CFO/TA $_{t-1}$ | 1987 - 1997 | 0.523*** | 0.520*** | 0.530*** | 0.533*** | 0.547*** |
| dNegCFO X CFO/TA $_{t-1}$ | 1998 - 2006 | 0.478*** | 0.478*** | 0.477*** | 0.478*** | 0.477*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2007 - 2009 | 0.390*** | 0.389*** | 0.388*** | 0.386*** | 0.384*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2010 - 2015 | 0.431*** | 0.439*** | 0.433*** | 0.409*** | 0.418*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1987 - 1997 | -0.0558 | 0.158 | -0.0887 | -0.179 | -0.431 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1998 - 2006 | 0.157 | -0.201 | 0.0925 | 0.224*** | 0.130* |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2007 - 2009 | 0.262 | -0.612** | -0.489** | -0.333 | -0.782*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2010 - 2015 | -0.373* | 0.141 | -0.0388 | -0.271** | -0.218** |
| Observations | 1987 - 1997 | 50,511 | 50,511 | 49,100 | 44,472 | 39,977 |
| Observations | 1998 - 2006 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 |
| Observations | 2007 - 2009 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 |
| Observations | 2010 - 2015 | 7,059 | 10,749 | 14,384 | 18,059 | 21,830 |
| R-squared | 1987 - 1997 | 16.8% | 16.9% | 17.0% | 16.7% | 17.0% |
| R-squared | 1998 - 2006 | 10.5% | 10.5% | 10.4% | 10.4% | 10.4% |
| R-squared | 2007 - 2009 | 8.1% | 8.2% | 8.2% | 8.1% | 8.1% |
| R-squared | 2010 - 2015 | 12.3% | 11.6% | 10.5% | 9.8% | 9.6% |

*** p<0.01, ** p<0.05, * p<0.1

Notes: Summary results of OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ACC* is accruals (income before extraordinary items minus operating cash flow), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDeal* is an indicator variable for an equity or debt issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. *Δ Sales, PPE* and *CFO* are included in the regressions but their coefficients are not shown.

the persistence of asset deflated earnings changes, conditional on prior earnings news:

$$\Delta IB_{it} = \alpha_0 + \alpha_1 dNeg\Delta IB_{it-1} + \alpha_2 \Delta IB_{it-1} + \alpha_3 dNeg\Delta IB_{it-1} * \Delta IB_{it-1} + \varepsilon_{it} \quad (4)$$

where $\Delta IB_{it}$ is the change in net income before extraordinary items in the current period; $dNeg\Delta IB_{it-1}$ is an indicator variable, which takes the value of one if the change in net income before extraordinary items in the previous period is negative and is otherwise zero; and $\Delta IB_{it-1}$ is the change in net income before extraordinary items in the previous period. All variables are deflated by one year-lagged total assets, except the indicator variables. If bad news earnings changes have a greater tendency to reverse in the next period than good news earnings changes, we expect $\alpha_3$ to be significantly negative.

As before, we adopt different measures for capital structure decisions, specifically a firm's debt and equity issues, by introducing indicator and interaction variables according to the deal type (debt versus equity and public versus private) as well as the timing of the issue relative to the fiscal year of the financial reporting. The models can be expressed as:

$$\Delta IB_{it} = \alpha_0 + \alpha_1 dNeg\Delta IB_{it-1} + \alpha_2 \Delta IB_{it-1} + \alpha_3 dNeg\Delta IB_{it-1} * \Delta IB_{it-1} + \alpha_4 dDeal_i + \alpha_5 dDeal_i * dNeg\Delta IB_{it-1} + \alpha_6 dDeal_i * \Delta IB_{it-1} + \alpha_7 dDeal_i * dNeg\Delta IB_{it-1} * \Delta IB_{it-1} + \varepsilon_{it} \quad (5)$$

and

$$\Delta IB_{it} = \alpha_0 + \alpha_1 dNeg\Delta IB_{it-1} + \alpha_2 \Delta IB_{it-1} + \alpha_3 dNeg\Delta IB_{it-1} * \Delta IB_{it-1} + \alpha_4 dDealPrivate_i + \alpha_5 dDealPrivate_i * dNeg\Delta IB_{it-1} + \alpha_6 dDealPrivate_i * \Delta IB_{it-1} + \alpha_7 dDealPrivate_i * dNeg\Delta IB_{it-1} * \Delta IB_{it-1} + \alpha_8 dDealPublic_i + \alpha_9 dDealPublic_i * dNeg\Delta IB_{it-1} + \alpha_{10} dDealPublic_i * \Delta IB_{it-1} + \alpha_{11} dDealPublic_i * dNeg\Delta IB_{it-1} * \Delta IB_{it-1} + \varepsilon_{it} \quad (6)$$

The regression outcomes of these models are presented in Tables 3.7 and 3.8 below.

**Table 3.7: The relation between conservatism (alternative measure) and deals**

| | Main model | Equity issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ |
| dNeg[ΔIB /TA t-1 (lagged)] | -0.00957*** | -0.00999*** | -0.00971*** | -0.0102*** | -0.0110*** | -0.00916*** |
| | (0.00178) | (0.00199) | (0.00195) | (0.00196) | (0.00180) | (0.00172) |
| ΔIB/TA t-1 (lagged) | -0.0381 | -0.0249 | -0.0302 | -0.0334 | -0.0358 | -0.0361 |
| | (0.0251) | (0.0255) | (0.0242) | (0.0238) | (0.0254) | (0.0254) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) | -0.393*** | -0.442*** | -0.432*** | -0.446*** | -0.447*** | -0.395*** |
| | (0.0613) | (0.0645) | (0.0609) | (0.0611) | (0.0621) | (0.0634) |
| dDeal | | 0.00414 | 0.00854** | 0.0201*** | 0.00309 | -5.39e-05 |
| | | (0.00528) | (0.00418) | (0.00332) | (0.00247) | (0.00262) |
| dNeg[ΔIB /TA t-1 (lagged)] X dDeal | | 0.00561 | -0.00761 | -0.00791* | -0.00408 | -0.00680 |
| | | (0.00644) | (0.00534) | (0.00429) | (0.00359) | (0.00443) |
| ΔIB/TA t-1 (lagged) X dDeal | | 0.0122 | -0.000647 | -0.0153 | -0.0139 | -0.0309 |
| | | (0.0520) | (0.0437) | (0.0512) | (0.0220) | (0.0326) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) X dDeal | | 0.180** | 0.140 | 0.345*** | 0.384*** | 0.128 |
| | | (0.0894) | (0.107) | (0.0815) | (0.0540) | (0.0792) |
| Observations | 137,468 | 120,195 | 124,441 | 128,680 | 131,560 | 131,042 |
| R-squared | 5.6% | 6.0% | 6.0% | 5.9% | 5.7% | 5.4% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 3.7: The relation between conservatism (alternative measure) and deals (continued)**

| | | | Debt issues | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (7) | (8) | (9) | (10) | (11) |
| VARIABLES | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ |
| dNeg[ΔIB /TA t-1 (lagged)] | -0.00955*** | -0.0102*** | -0.0102*** | -0.00987*** | -0.00962*** |
| | (0.00197) | (0.00193) | (0.00193) | (0.00191) | (0.00183) |
| ΔIB/TA t-1 (lagged) | -0.0234 | -0.0297 | -0.0323 | -0.0364 | -0.0387 |
| | (0.0252) | (0.0257) | (0.0257) | (0.0256) | (0.0263) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) | -0.428*** | -0.422*** | -0.419*** | -0.403*** | -0.382*** |
| | (0.0643) | (0.0636) | (0.0619) | (0.0627) | (0.0628) |
| dDeal | 0.00536*** | 0.00447** | 0.00355* | 0.00340** | -0.00123 |
| | (0.00162) | (0.00174) | (0.00190) | (0.00154) | (0.00258) |
| dNeg[ΔIB /TA t-1 (lagged)] X dDeal | -0.00200 | 0.00706 | 0.00353 | 0.00119 | 0.00416 |
| | (0.00626) | (0.00520) | (0.00413) | (0.00481) | (0.00586) |
| ΔIB/TA t-1 (lagged) X dDeal | 0.0270 | 0.0373 | -0.0764** | -0.0173 | 0.0698 |
| | (0.0368) | (0.0536) | (0.0386) | (0.0396) | (0.106) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) X dDeal | -0.257 | -0.0873 | 0.216 | 0.139 | -0.127 |
| | (0.202) | (0.117) | (0.157) | (0.128) | (0.133) |
| Observations | 120,195 | 124,441 | 128,680 | 131,560 | 131,042 |
| R-squared | 6.0% | 6.0% | 5.9% | 5.7% | 5.4% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. ΔIB is change in income before extraordinary items, *ΔIB/TA t-1 (lagged)* is ΔIB lagged by one year, *dNeg[ΔIB /TA t-1 (lagged)]* is an indicator variable for negative *ΔIB/TA t-1 (lagged)*, and *dDeal* is an indicator variable for an equity or debt issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

**Table 3.8: The relation between conservatism (alternative measure) and public and private deals**

| | Equity issues | | | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ |
| dNeg[ΔIB /TA t-1 (lagged)] | -0.00999*** | -0.00971*** | -0.0102*** | -0.0110*** | -0.00915*** |
| | (0.00199) | (0.00195) | (0.00196) | (0.00180) | (0.00172) |
| ΔIB/TA t-1 (lagged) | -0.0249 | -0.0303 | -0.0334 | -0.0358 | -0.0361 |
| | (0.0255) | (0.0242) | (0.0238) | (0.0254) | (0.0254) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) | -0.442*** | -0.432*** | -0.446*** | -0.446*** | -0.395*** |
| | (0.0645) | (0.0609) | (0.0612) | (0.0622) | (0.0635) |
| dDealPrivate | -0.0101 | -0.00537 | 0.00535 | -0.00122 | 0.00989 |
| | (0.0170) | (0.0140) | (0.0167) | (0.0129) | (0.00658) |
| dNeg[ΔIB /TA t-1 (lagged)] X dDealPrivate | 0.0193 | 0.00288 | -0.0115 | -0.000307 | -0.00933 |
| | (0.0205) | (0.0167) | (0.0157) | (0.0152) | (0.0176) |
| ΔIB/TA t-1 (lagged) X dDealPrivate | 0.0800 | 0.0769 | -0.0116 | 0.0780 | -0.0566 |
| | (0.0681) | (0.0523) | (0.0810) | (0.0625) | (0.0574) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) X dDealPrivate | 0.128 | 0.132 | 0.318** | 0.189* | 0.229* |
| | (0.109) | (0.130) | (0.134) | (0.113) | (0.131) |
| dDealPublic | 0.00700 | 0.0118*** | 0.0215*** | 0.00552*** | -0.00164 |
| | (0.00446) | (0.00349) | (0.00319) | (0.00198) | (0.00274) |
| dNeg[ΔIB /TA t-1 (lagged)] X dDealPublic | 0.00260 | -0.0112** | -0.00549 | -0.00509 | -0.00726 |
| | (0.00641) | (0.00516) | (0.00476) | (0.00510) | (0.00512) |
| ΔIB/TA t-1 (lagged) X dDealPublic | -0.0220 | -0.0450 | -0.00461 | -0.0661** | -0.0196 |
| | (0.0711) | (0.0448) | (0.0558) | (0.0271) | (0.0445) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) X dDealPublic | 0.202* | 0.138 | 0.332*** | 0.498*** | 0.0853 |
| | (0.114) | (0.123) | (0.0970) | (0.0547) | (0.0935) |
| Observations | 120,195 | 124,441 | 128,680 | 131,560 | 131,042 |
| R-squared | 6.0% | 6.0% | 6.0% | 5.7% | 5.4% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 3.8: The relation between conservatism (alternative measure) and public and private deals (continued)**

| | | | Debt issues | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ | ΔIB/TA $_{t-1}$ |
| dNeg[ΔIB /TA t-1 (lagged)] | -0.00955*** | -0.0102*** | -0.0102*** | -0.00987*** | -0.00962*** |
| | (0.00197) | (0.00193) | (0.00193) | (0.00191) | (0.00183) |
| ΔIB/TA t-1 (lagged) | -0.0234 | -0.0298 | -0.0324 | -0.0364 | -0.0387 |
| | (0.0252) | (0.0257) | (0.0257) | (0.0256) | (0.0263) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) | -0.428*** | -0.422*** | -0.419*** | -0.403*** | -0.382*** |
| | (0.0643) | (0.0636) | (0.0619) | (0.0627) | (0.0628) |
| dDealPrivate | 0.00432 | 0.00346 | 0.00389 | 0.00219 | -0.00218 |
| | (0.00263) | (0.00229) | (0.00237) | (0.00274) | (0.00308) |
| dNeg[ΔIB /TA t-1 (lagged)] X dDealPrivate | -0.0110 | 0.00712 | -0.00300 | -0.000518 | 0.00243 |
| | (0.00948) | (0.00791) | (0.00496) | (0.00671) | (0.00753) |
| ΔIB/TA t-1 (lagged) X dDealPrivate | 0.0215 | 0.0663 | -0.124*** | 0.00200 | 0.0894 |
| | (0.0427) | (0.0581) | (0.0421) | (0.0445) | (0.0963) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) X dDealPrivate | -0.367 | -0.0414 | 0.224 | 0.196 | -0.152 |
| | (0.260) | (0.115) | (0.181) | (0.144) | (0.191) |
| dDealPublic | 0.00578*** | 0.00789*** | 0.00239 | 0.00497*** | -0.000580 |
| | (0.00135) | (0.00196) | (0.00194) | (0.00172) | (0.00288) |
| dNeg[ΔIB /TA t-1 (lagged)] X dDealPublic | 0.00765* | 0.00331 | 0.0103** | -0.00241 | 0.00539 |
| | (0.00418) | (0.00575) | (0.00447) | (0.00678) | (0.00605) |
| ΔIB/TA t-1 (lagged) X dDealPublic | 0.0413 | -0.108* | 0.0187 | -0.0719 | 0.0502 |
| | (0.0277) | (0.0587) | (0.0440) | (0.0561) | (0.134) |
| dNeg[ΔIB /TA t-1 (lagged)] X ΔIB/TA t-1 (lagged) X dDealPublic | -0.0228 | -0.0802 | 0.194 | -0.0793 | -0.112 |
| | (0.162) | (0.187) | (0.135) | (0.264) | (0.251) |
| Observations | 120,195 | 124,441 | 128,680 | 131,560 | 131,042 |
| R-squared | 6.0% | 6.0% | 6.0% | 5.7% | 5.4% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ΔIB* is change in income before extraordinary items, *ΔIB/TA t-1 (lagged)* is *ΔIB* lagged by one year, *dNeg[ΔIB /TA t-1 (lagged)]* is an indicator variable for negative *ΔIB/TA t-1 (lagged)*, and *dDealPrivate* (*dDealPublic*) is an indicator variable for an equity or debt issue in the private (public) markets, respectively, during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

In the base case model (i.e. the alternative Basu (1997) regression) in Table 3.7, the coefficient of the variable measuring the more timely reversal of negative earnings changes than positive earnings changes (i.e. $\alpha_3$ in model 4) has the expected negative sign and is highly significant. We note as well that this conservatism effect is present in the other models with deal variables (referring to columns (2) to (11) in Table 3.7). We find, however, that the regression results based on the alternative conservatism model are not consistent with our main conclusion that conservative reporting is associated with equity issues (the coefficients of the variable *dDeal* * $dNeg\Delta IB_{it-1}$ * $\Delta IB_{it-1}$ in models (4) and (5) are positive and significant), while the lack of impact by debt issues on reporting behavior remains the same (i.e. $\alpha_7$ is insignificant in columns (7) to (11)). When we make a distinction between private and public deals, the results of the alternative Basu approach again appear to differ from the finding in the main model that increased conservatism by equity issuers is driven by the demand from the public markets. This is seen in the positive and significant coefficients in models (1), (3) and (4) in Table 3.8. The absence of significant relationships between debt deals and firms' reporting behavior, on the other hand, still remains in the alternative Basu model. In any case, upon interpreting these results, it is crucial to note that the results of the alternative models are weaker, with R-squares between 5 and 6% substantially lower than the explanatory power of around 12 to 13% in the main Ball and Shivakumar regressions.

Table 3.9 shows the results of the accruals-based regressions where the debt and equity issue dummy and interaction variables are specified on a 'clean deal' basis (again a clean deal is one where it is the only deal of its type, whether debt or equity, in the period *t-1* to *t+1* relative to the reporting year *t0*). The positive coefficients on the variable *dDeal * dNegCFO * CFO* in all but one of the equity models support our main conclusion that conservative reporting is associated with equity issues but not debt issues.

**Table 3.9: The relation between conservatism and clean deals**

| | Clean equity issues | | | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ |
| ΔSales/TA $_{t-1}$ | 0.0952*** | 0.0942*** | 0.0915*** | 0.0931*** | 0.0919*** |
| | (0.00436) | (0.00424) | (0.00428) | (0.00461) | (0.00508) |
| PPE /TA $_{t-1}$ | -0.0160*** | -0.0166*** | -0.0167*** | -0.0172*** | -0.0175*** |
| | (0.00286) | (0.00291) | (0.00290) | (0.00280) | (0.00268) |
| dNegCFO | -0.00693 | -0.00610 | -0.00808* | -0.00823* | -0.0102** |
| | (0.00481) | (0.00475) | (0.00468) | (0.00449) | (0.00443) |
| CFO /TA $_{t-1}$ | -0.421*** | -0.416*** | -0.415*** | -0.409*** | -0.407*** |
| | (0.0160) | (0.0154) | (0.0154) | (0.0163) | (0.0169) |
| dNegCFO X CFO/TA $_{t-1}$ | 0.489*** | 0.486*** | 0.486*** | 0.483*** | 0.483*** |
| | (0.0187) | (0.0179) | (0.0188) | (0.0184) | (0.0192) |
| dDeal | 0.00488 | 0.00959** | 0.0123* | 0.00631 | -0.00803** |
| | (0.00620) | (0.00440) | (0.00686) | (0.00483) | (0.00395) |
| ΔSales/TA $_{t-1}$ X dDeal | 0.0121 | 0.0294*** | 0.0402*** | 0.00883 | 0.0313** |
| | (0.0122) | (0.00745) | (0.0101) | (0.00879) | (0.0122) |
| PPE/TA $_{t-1}$ X dDeal | 0.00411 | 0.00247 | -0.00898* | -0.000205 | 0.00596 |
| | (0.00584) | (0.00722) | (0.00465) | (0.00371) | (0.00516) |
| dNegCFO X dDeal | -0.0140 | -0.0409*** | -0.00561 | -0.0305*** | -0.0113 |
| | (0.00916) | (0.00995) | (0.0119) | (0.00859) | (0.00955) |
| CFO/TA $_{t-1}$ X dDeal | -0.135*** | -0.202*** | -0.0889** | -0.0959*** | -0.0686** |
| | (0.0434) | (0.0369) | (0.0407) | (0.0350) | (0.0327) |
| dNegCFO X CFO/TA $_{t-1}$ X dDeal | 0.161*** | 0.170*** | 0.102** | 0.0885 | 0.102** |
| | (0.0615) | (0.0451) | (0.0474) | (0.0607) | (0.0515) |
| Observations | 114,416 | 118,043 | 120,158 | 119,139 | 118,468 |
| R-squared | 12.8% | 12.8% | 12.6% | 12.2% | 12.0% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 3.9: The relation between conservatism and clean deals (continued)**

| | Clean debt issues | | | | |
|---|---|---|---|---|---|
| | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ | ACC /TA $_{t-1}$ |
| ΔSales/TA $_{t-1}$ | 0.0960*** | 0.0958*** | 0.0956*** | 0.0940*** | 0.0930*** |
| | (0.00438) | (0.00433) | (0.00445) | (0.00458) | (0.00495) |
| PPE /TA $_{t-1}$ | -0.0161*** | -0.0165*** | -0.0170*** | -0.0171*** | -0.0170*** |
| | (0.00301) | (0.00294) | (0.00286) | (0.00286) | (0.00280) |
| dNegCFO | -0.00726 | -0.00744 | -0.00823* | -0.00958** | -0.0109** |
| | (0.00491) | (0.00483) | (0.00474) | (0.00463) | (0.00463) |
| CFO /TA $_{t-1}$ | -0.423*** | -0.421*** | -0.419*** | -0.413*** | -0.410*** |
| | (0.0158) | (0.0155) | (0.0160) | (0.0162) | (0.0168) |
| dNegCFO X CFO/TA $_{t-1}$ | 0.493*** | 0.491*** | 0.492*** | 0.486*** | 0.488*** |
| | (0.0181) | (0.0177) | (0.0179) | (0.0187) | (0.0192) |
| dDeal | 0.0177*** | 0.0281*** | 0.0165*** | 0.0102** | 0.0117*** |
| | (0.00559) | (0.00356) | (0.00347) | (0.00412) | (0.00321) |
| ΔSales/TA $_{t-1}$ X dDeal | -0.0329*** | -0.0446*** | -0.0514*** | -0.0453*** | -0.0213** |
| | (0.0103) | (0.00929) | (0.00814) | (0.0111) | (0.00945) |
| PPE/TA $_{t-1}$ X dDeal | -0.000648 | -0.0126*** | -0.00933** | -0.00598 | -0.0106** |
| | (0.00521) | (0.00457) | (0.00421) | (0.00537) | (0.00456) |
| dNegCFO X dDeal | 0.00659 | 0.0448*** | 0.0399*** | 0.00603 | 0.0194* |
| | (0.0213) | (0.0150) | (0.0129) | (0.00931) | (0.0104) |
| CFO/TA $_{t-1}$ X dDeal | -0.0455 | -0.0207 | 0.00417 | 0.0181 | 0.0351 |
| | (0.0358) | (0.0316) | (0.0229) | (0.0380) | (0.0274) |
| dNegCFO X CFO/TA $_{t-1}$ X dDeal | -0.204 | -0.0571 | 0.0319 | 0.0521 | -0.0777* |
| | (0.317) | (0.150) | (0.114) | (0.0951) | (0.0470) |
| Observations | 114,359 | 117,989 | 120,022 | 119,076 | 118,375 |
| R-squared | 12.8% | 12.8% | 12.6% | 12.2% | 12.0% |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ACC* is accruals (income before extraordinary items minus operating cash flow), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDeal* is an indicator variable for a clean deal, defined as an issue that is the only one of its type (i.e. debt or equity) in the period $\pm 1$ year around year t0. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

Lastly, we run the clean deal models with and without the private – public distinction in the four sub-periods and report the results in Table 3.10. The equity results shown in Table 3.10 – Panel A are consistent with Table 3.6, as firms recognise negative bad news more timely than positive news in their accruals around and during the year of equity issue in the period 1987 – 1997 as well as the post-crisis period. The conservatism effect captured during the crisis years in the main model disappears, however, probably due to the lower number of (clean) deals, which might also lead to the lower R-square statistic. The results in the regression models with debt issues turn out to be weak and sporadic, similar to columns (7) to (11) in Table 3.6. Looking at Panel B, we see that the conservatism observed in the financial statements of equity-issuers, on a clean deal basis, is driven by the demand from the public markets. This reinforces the finding of our main model presented in Table 3.5. However, the fact that the coefficients of the variable dDealPublic * dNegCFO * CFO are significant only in models (1) to (3) indicates that firms exhibit increased conservative accrual recognition in the years leading up to their secondary equity offerings. The debt models meanwhile suggest that the issuing public and private debt is associated with *less* conservatism during the financial crisis as well as the years leading up to that albeit to a lesser extent. Again, we point out that the results in columns (6) to (10) are somewhat mixed and the models of the sub-periods with significant results in general have lower explanatory power.

## 3.5 Conclusions

This paper examines the relative importance of debtholders' and shareholders' demand for conservative accounting. We use the concept of conditional conservatism, i.e. the asymmetric timing of recognizing bad and good news regarding cash flows into the accounting system. There are two distinct views in the contracting literature on the rationale for accounting conservatism. The first

## Table 3.10: Summary of relations between conservatism and clean deals by period

**Panel A: Main models (key variables only)**

| | | Clean equity issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | PERIOD | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| dNegCFO X CFO/TA $_{t-1}$ | 1987 - 1997 | 0.519*** | 0.519*** | 0.527*** | 0.526*** | 0.543*** |
| dNegCFO X CFO/TA $_{t-1}$ | 1998 - 2006 | 0.480*** | 0.478*** | 0.475*** | 0.480*** | 0.478*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2007 - 2009 | 0.385*** | 0.392*** | 0.389*** | 0.383*** | 0.383*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2010 - 2015 | 0.415*** | 0.410*** | 0.425*** | 0.416*** | 0.408*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1987 - 1997 | 0.234** | 0.196*** | 0.150** | 0.219** | 0.177*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1998 - 2006 | 0.0403 | 0.0634 | 0.0623 | -0.0117 | 0.0635 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2007 - 2009 | 0.112 | 0.140 | -0.0355 | 0.253 | 0.0833 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2010 - 2015 | 0.600*** | 0.358*** | -0.229 | -0.0938 | 0.0115 |
| Observations | 1987 - 1997 | 50,511 | 50,484 | 49,007 | 44,377 | 39,890 |
| Observations | 1998 - 2006 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 |
| Observations | 2007 - 2009 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 |
| Observations | 2010 - 2015 | 6,786 | 10,440 | 14,032 | 17,643 | 21,459 |
| R-squared | 1987 - 1997 | 16.8% | 16.8% | 17.0% | 16.6% | 17.0% |
| R-squared | 1998 - 2006 | 10.3% | 10.4% | 10.4% | 10.4% | 10.4% |
| R-squared | 2007 - 2009 | 8.0% | 8.2% | 8.1% | 8.1% | 8.1% |
| R-squared | 2010 - 2015 | 12.8% | 12.2% | 10.7% | 10.1% | 9.7% |

*** p<0.01, ** p<0.05, * p<0.1

## Table 3.10: Summary of relations between conservatism and clean deals by period (continued)

**Panel A: Main models (key variables only) (continued)**

| | | Clean debt issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | PERIOD | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| dNegCFO X CFO/TA $_{t-1}$ | 1987 - 1997 | 0.525*** | 0.522*** | 0.531*** | 0.533*** | 0.547*** |
| dNegCFO X CFO/TA $_{t-1}$ | 1998 - 2006 | 0.479*** | 0.480*** | 0.479*** | 0.480*** | 0.480*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2007 - 2009 | 0.390*** | 0.388*** | 0.389*** | 0.388*** | 0.386*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2010 - 2015 | 0.429*** | 0.439*** | 0.432*** | 0.410*** | 0.418*** |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1987 - 1997 | -0.442** | 0.124 | 0.120 | 0.146 | -0.175 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 1998 - 2006 | 0.292 | -0.324 | 0.0300 | 0.189 | -0.0338 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2007 - 2009 | -2.767*** | -0.493 | -0.459** | -0.853*** | -0.603 |
| dNegCFO X CFO/TA $_{t-1}$X dDeal | 2010 - 2015 | 0.0408 | 0.182*** | 0.164 | -0.248 | -0.0877 |
| Observations | 1987 - 1997 | 50,511 | 50,461 | 48,854 | 44,233 | 39,745 |
| Observations | 1998 - 2006 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 |
| Observations | 2007 - 2009 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 |
| Observations | 2010 - 2015 | 6,729 | 10,409 | 14,049 | 17,724 | 21,511 |
| R-squared | 1987 - 1997 | 16.8% | 16.8% | 16.9% | 16.6% | 17.0% |
| R-squared | 1998 - 2006 | 10.4% | 10.4% | 10.3% | 10.4% | 10.3% |
| R-squared | 2007 - 2009 | 8.0% | 8.1% | 8.1% | 8.1% | 8.0% |
| R-squared | 2010 - 2015 | 11.8% | 11.3% | 10.2% | 9.6% | 9.4% |

*** p<0.01, ** p<0.05, * p<0.1

Notes: Summary results of OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ACC* is accruals (income before extraordinary items minus operating cash flow), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDeal* is an indicator variable for a clean deal, defined as an issue that is the only one of its type (i.e. debt or equity) in the period ±1 year around year t0. All variables are deflated by beginning total assets, except the indicator variables. *Δ Sales*, *PPE* and *CFO* are included in the regressions but their coefficients are not shown.

**Table 3.10: Summary of relations between conservatism and clean deals by period (continued)**

**Panel B: Private - Public models (key variables only)**

| | | Clean equity issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | PERIOD | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| dNegCFO X CFO/TA $_{t-1}$ | 1987 - 1997 | 0.519*** | 0.519*** | 0.527*** | 0.526*** | 0.543*** |
| dNegCFO X CFO/TA $_{t-1}$ | 1998 - 2006 | 0.480*** | 0.478*** | 0.475*** | 0.481*** | 0.478*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2007 - 2009 | 0.385*** | 0.392*** | 0.389*** | 0.383*** | 0.383*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2010 - 2015 | 0.415*** | 0.410*** | 0.425*** | 0.416*** | 0.408*** |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 1987 - 1997 | -0.140 | -0.145 | 0.467** | 0.436** | 0.573 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 1998 - 2006 | 0.0207 | 0.119 | 0.0592 | -0.127 | 0.119 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 2007 - 2009 | -0.760*** | 0.306* | -0.104*** | 0.159 | 0.298 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 2010 - 2015 | -1.811*** | 0.346 | 0.0157 | -0.545*** | -0.242 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 1987 - 1997 | 0.241** | 0.210*** | 0.0999 | 0.225** | 0.154 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 1998 - 2006 | 0.152* | 0.201*** | 0.0155 | 0.0280 | 0.0509 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 2007 - 2009 | 0.328* | 0.133 | 0.0616 | 0.263 | -0.0645 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 2010 - 2015 | 0.805*** | 0.366*** | -0.286 | -0.0525 | 0.0607 |
| Observations | 1987 - 1997 | 50,511 | 50,484 | 49,007 | 44,377 | 39,890 |
| Observations | 1998 - 2006 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 |
| Observations | 2007 - 2009 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 |
| Observations | 2010 - 2015 | 6,786 | 10,440 | 14,032 | 17,643 | 21,459 |
| R-squared | 1987 - 1997 | 16.8% | 16.8% | 17.1% | 16.6% | 17.0% |
| R-squared | 1998 - 2006 | 10.4% | 10.5% | 10.5% | 10.4% | 10.4% |
| R-squared | 2007 - 2009 | 8.2% | 8.3% | 8.2% | 8.2% | 8.4% |
| R-squared | 2010 - 2015 | 13.1% | 12.3% | 10.8% | 10.3% | 9.8% |

* p<0.01, ** p<0.05, * p<0.1

## Table 3.10: Summary of relations between conservatism and clean deals by period (continued)

**Panel B: Private - Public models (key variables only) (continued)**

| | | Clean debt issues | | | | |
|---|---|---|---|---|---|---|
| | | Period t+2 | Period t+1 | Period t0 | Period t-1 | Period t-2 |
| | | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | PERIOD | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ | ACC/TA $_{t-1}$ |
| dNegCFO X CFO/TA $_{t-1}$ | 1987 - 1997 | 0.525*** | 0.522*** | 0.531*** | 0.533*** | 0.547*** |
| dNegCFO X CFO/TA $_{t-1}$ | 1998 - 2006 | 0.479*** | 0.480*** | 0.479*** | 0.480*** | 0.480*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2007 - 2009 | 0.389*** | 0.388*** | 0.389*** | 0.388*** | 0.386*** |
| dNegCFO X CFO/TA $_{t-1}$ | 2010 - 2015 | 0.429*** | 0.439*** | 0.432*** | 0.410*** | 0.418*** |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 1987 - 1997 | -0.307 | 0.226 | 0.282 | 0.225 | -0.00171 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 1998 - 2006 | 0.349 | -0.264 | 0.0382 | 0.188 | -0.0202 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 2007 - 2009 | -3.197*** | -0.543 | -0.444*** | 0.977** | 0.780 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPrivate | 2010 - 2015 | 0.963*** | 0.0332 | 0.145 | -0.574*** | -0.0927 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 1987 - 1997 | -1.231*** | -0.0502 | -0.172 | -0.443 | -1.263*** |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 1998 - 2006 | -1.147*** | -1.566*** | -0.754 | -0.362 | -0.578 |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 2007 - 2009 | -0.869*** | -1.102*** | -1.687*** | -0.216 | -1.842*** |
| dNegCFO X CFO/TA $_{t-1}$ X dDealPublic | 2010 - 2015 | - | 0.205** | -0.0181 | 0.0173 | -0.000123 |
| Observations | 1987 - 1997 | 50,511 | 50,461 | 48,854 | 44,233 | 39,745 |
| Observations | 1998 - 2006 | 44,947 | 44,947 | 44,947 | 44,947 | 44,947 |
| Observations | 2007 - 2009 | 12,172 | 12,172 | 12,172 | 12,172 | 12,172 |
| Observations | 2010 - 2015 | 6,729 | 10,409 | 14,049 | 17,724 | 21,511 |
| R-squared | 1987 - 1997 | 16.8% | 16.8% | 16.9% | 16.6% | 17.0% |
| R-squared | 1998 - 2006 | 10.4% | 10.4% | 10.4% | 10.4% | 10.3% |
| R-squared | 2007 - 2009 | 8.1% | 8.2% | 8.1% | 8.1% | 8.1% |
| R-squared | 2010 - 2015 | 11.8% | 11.3% | 10.3% | 9.6% | 9.4% |

* p<0.01, ** p<0.05, * p<0.1

Notes: Summary results of OLS regressions with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. *ACC* is accruals (income before extraordinary items minus operating cash flow), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDealPrivate (dDealPublic)* is an indicator variable for a clean deal issued in the private (public) markets, where a clean deal is defined as an issue that is the only one of its type (i.e. debt or equity) in the period $\pm 1$ year around year t0. All variables are deflated by beginning total assets, except the indicator variables. *Δ Sales*, *PPE* and *CFO* are included in the regressions but their coefficients are not shown.

view emphasizes that conservatism is primarily meant to increase debt contracting efficiency. By triggering ex-post violations of debt covenants, the early recognition of losses allows lenders to more rapidly protect themselves by renegotiating the terms of the debt including the requirement of an immediate repayment. The second view focuses on the shareholders' demand for conservatism. From this perspective, conservatism is a governance mechanism that reduces the ability of managers to manipulate and overstate financial performance and thereby increases the firm's cash flows and value.

Our research question focuses on the impact of important capital structure decisions on a firm's accounting choices. We use debt and equity issues data for a large sample of US firms over the period 1988 to 2013. This long timespan has enabled us to investigate not only the timing of conservatism – i.e. does early loss recognition precede or follow a security issue? – but also how debt and equity funding affects firms' accounting choices over time. We have studied the first aspect of timing issue by examining changes in a firm's accounting conservatism over a seven-year window around a security issue event. To observe the development of conservatism from the late 1980s until early 2010s, we split the sample into four sub-periods and compared the regression results.

The primary model used for measuring accounting conservatism is the one by Ball and Shivakumar (2005). We motivate this choice because it is well known in the finance literature that security issues are generally preceded by positive stock returns and followed by losses. This rules out the use of the Basu model (1997). Relying on Ball and Shivakumar, we then show that equity deals tend to be accompanied by conservative accounting, relative to non-issuing firms, and that the strongest effects appear in the immediate period before an issue. We also found that the more timely recognition of losses in accruals by equity issuers is in fact driven by the public markets (private placements do not appear to trigger additional conservatism in the period around such transactions). With respect to

debt deals, we did not detect their effects on conservatism around the period of issue in the total sample, although significant yet weaker effects are observed in the analysis where private and public deals are separately identified, suggesting less conservatism for public debt issues. Several robustness checks, including the use of an alternative measure for conservatism, did not change our primary results.

Taking the results of our analyses into consideration, we conclude that conservatism exhibited by US companies is driven primarily by the demand of shareholders in the public markets and that managers time their earnings behavior in the years leading up to an issue. The fact that conservative accounting is not associated with private deals suggests that the investors in these transactions are probably already familiar with the issuers, which reduces the importance of the role of financial reports as a governance mechanism. Our interpretation is that managers try to signal credibility to the (public) equity markets in the face of an important fundraising event where the terms of the equity deal might be dependent on this signal.

# Chapter 4

# International comparison of accounting conservatism: drivers of conservative reporting and variations across the world [32]

## 4.1 Introduction

Conservatism refers to the more timely recognition of losses in reported financial statements compared to gains. This accounting principle is a long-standing concept but its explanations have gained interest in the research community relatively recently. Empirically, conservatism has been shown to have persisted over a long period of time and has in fact been increasing in the past decades (Basu, 1997; Watts, 2003b). In an overview provided by Watts (2003a, 2003b), four main causes of conservatism have so far been put forth, the most prominent of which is the contracting view. The basic tenet is that conservative accounting practice reduces the agency costs inherent in the institutional structure of public corporations and therefore benefits both debt and equity holders. For debt holders,

[32] This is a single-authored chapter.

timely recognition of losses leads to a timely transfer of control over the firm to them in time of distress, facilitating monitoring and preventing shareholders (who could be seen as holders of call option on the company) from taking excessive risk or overpaying dividends in the process (Watts and Zimmerman, 1986; Watts, 1993, 2003a; Ball, 2001). For equity holders, conservatism responds to the shareholder demand and serves to mitigate the agency cost related to managers' tendency to overstate current performance as reported on the financial statements (for instance, by delaying disclosure of bad news), which directly and indirectly affect their welfare and compensation (LaFond and Watts, 2008).

In this chapter, I investigate how the issuance of debt and equity affects the demand for conservative accounting in different countries (firm-level) as well as how certain institutional and market factors can explain variations in conservatism across the world (country-level). The contribution to the existing literature (including the previous chapter of this dissertation) is two-fold. First, I offer further insights into the relationship between capital markets and financial reporting practices at firm level. The findings of this study would be an interesting addition to the existing body of conservatism research due to the presence of conflicting evidence. Ball et al. (2008) analyze data from 22 countries and show that – on an aggregate country-level – conditional conservatism is influenced primarily by demand from debt markets and not equity markets. The debtholder demand view is also consistent with other works that have shown conservative reporting to be associated with more favorable terms for borrowers (Zhang, 2008), lower cost of debt (Ahmed et al., 2002) and longer maturity (Kang et al., 2017). On the other hand, an argument for equity markets demand has been made as well based on the observation of Bushman and Piotroski (2006) that the quality of judicial system and shareholder protection increase conditional conservatism in their analysis of public companies in 38 countries. Ball and Shivakumar (2005) also find that, in the United Kingdom, public firms report more conservatively

than private firms although they are subject to the same regulatory provisions. They conclude that the difference in reporting quality can be attributed to the market demand. Similar results based on US data are obtained in Givoly et al. (2010) where listed companies are found to recognize losses more timely than gains to a greater degree than private firms. In another study of UK companies by Ball and Shivakumar (2008), firms' accounting reports exhibit higher timeliness around the time of initial public offerings (IPO) compared to the period during which they were private. The reason for this is that higher reporting quality is required to resolve the information asymmetry between investors and issuing firms, pointing again to the equity markets demand. Furthermore, conservatism has also been shown to lead to lower cost of equity (Li, 2015; Garcia Lara et al., 2011) with weaker effects for firms with lower information asymmetry (Artiach and Clarkson, 2013). Furthermore, it has been shown in Chapter 3 of this dissertation that, based on the US data over the period 1988 – 2013, firms that raise equity exhibit greater timeliness of loss recognition than non-issuers, especially in the period leading up to the deal and in the public markets. Deal effects on conservative reporting are, however, not detected for debt transactions or for equity private placements.

In the first stage of this research, I analyze the reporting behavior of companies in 45 countries during the period 1987 – 2015 to understand the impact of fundraising events on accounting conservatism. The long timespan of the data has two advantages. One is that it allows for a study of the timing of conservatism – i.e. whether it serves a signaling purpose towards capital providers prior to the deal or it follows such capital structure decisions. The other benefit is that it makes it possible to investigate how the demand for conservatism develops through time, specifically around the global financial crisis in the late 2000s. This is especially relevant considering that both debtholder and shareholder demand for conservatism is driven by its contracting benefits, which could play a significant

role in investors' capital allocation process in the period where capital markets and the banking systems were affected by the credit crunch. These factors might have influenced accounting practices of firms facing liquidity constraints. Indeed, there is evidence that conservatism could facilitate easier access to external funding. Balakrishnan et al. (2016) find that companies that report more conservatively see a smaller decline in investments than less conservative counterparts during the financial crisis, as their ability to raise funding reduces their need to limit spending. Moreover, in relation to the equity markets, Francis et al. (2013) observe a significantly positive relationship between conservatism and firm value during the crisis, especially for companies with weaker governance or higher information asymmetry, i.e. in cases where the shareholder demand for measures against agency costs is strongest.

The second contribution to the literature is to provide additional evidence for conservatism in an international setting. Despite the greater understanding of the determinants of financial reporting timeliness, the majority of the conservatism research has been conducted based on the US data. The amount of international studies is increasing but still limited, making an analysis of cross-country variation in the demand for conservatism a relevant topic. Based on the existing literature, country-level legal and institutional arrangements (which are built upon the seminal work by La Porta et al., 1997 and La Porta et al., 1998) have been shown to affect the extent to which accounting figures are reported conservatively. Ball et al. (2000) find that, in their sample of seven countries, earnings in common-law countries are more conservative due to the greater reliance on financial statements in setting contract clauses, as the closer relations between managers and contracting parties in code-law countries reduces the information asymmetry between the two and hence the demand for conservatism. Moreover, the researchers provide evidence that, among common-law countries, conservatism also increases with accounting regulation as well as the expected costs to

accounting firms related to investor litigation. Similar results are also obtained for four East Asian countries in a paper by Ball et al. (2003), in which financial reporting practice is shown to be affected not only by the institutional framework but also economic and political factors in those countries. Elsewhere, UK companies that are cross-listed in the US have been shown to report more conservatism earnings than their counterparts without such cross-listing because of a stricter enforcement regime within which the former group operates (Huijgen and Lubberink, 2005). Peek et al. (2010) compare the asymmetrical timeliness between private and public companies across 13 European countries and argue that both the creditors and investors in public entities have a greater demand for accounting information than their counterparts in private firms due to its contracting and governance role. By relating the demand for conservatism to the degree of creditor and investor protection provided by a country's institutions, they find that the public versus private firm difference in timeliness is attributed to the demand of the creditors – and not the shareholders – of public firms. In a more recent study, Li (2015) examines conservatism in a sample of 35 countries over an 18-year period and concludes that the level of conservatism of a country's financial reporting system could reduce its firms' cost of debt and equity.

While this paper shares similarities with Ball et al. (2008) in terms of the focus on debtholder and shareholder views on conservatism as well as the general setup of the study, there are also important differences. First, I investigate the relationship between conservatism and capital structure at firm level (by examining the effect of debt and equity issues on reporting) as well as analyze how country-level conservatism correlates with the size of debt and equity markets controlling for legal and institutional factors. Ball et al., in contrast, only cover the latter relationship in their study. The next key difference is the selection of the accounting conservatism measure. Specifically, I employ the Ball and Shivakumar (2005) model, where economic gains and losses are captured by operating cash

flow terms rather than stock returns. The reason for this is that security issues have been shown to be closely connected with stock prices in the period around the deals (Asquith and Mullins, 1986; Loughran and Ritter, 1997; Spies and Affleck-Graves, 1995, 1999). Thus, using a returns-based model would confound conservatism effects with market price movements due to issues in the setup of this paper (whereas this would not pose an issue in the Ball et al. (2008) model as they only observe debt and equity effects at a macro level). Finally, it is important to note as well that the dataset in this research is more extensive as it covers a longer time period and contains more companies as well as countries.

Using an extensive dataset consisting of more than 540,000 firm-year observations in 45 countries over the period 1987 – 2015, I find a remarkable variation in the levels of conditional conservatism by firms across the world. Temporal effects are also observed, as companies reporting behavior (referring specifically to the asymmetrical timeliness of loss recognition) changes over time, especially around the financial crisis. Some of the key results here are in sharp contrast to earlier studies, especially Ball et al. (2008). For one, the empirical evidence in this research provides much stronger support for the shareholders' demand view compared to the debt market demand. Furthermore, conservatism is associated not only with the legal origin of the counties but also their institutional factors (in terms of protection of creditor rights as well as investor rights).

## 4.2 Data and methodology

### 4.2.1 Data

The analysis is based on three categories of data – financial information, deals as well as markets and institutional variables. The former two are on a firm level while the latter is on a country level. For accounting variables, data are retrieved from WRDS / Compustat Global, which is consistent with the papers most closely

related to my research, e.g. Ball and Shivakumar (2006), Ball et al. (2008), Bushman and Piotroski (2006) and Li (2015). The sample covers all listed, non-financial, both active and non-active, firms in the database during the fiscal year period 1987 to 2015. Firm-year observations are only acknowledged in the period that a firm is public and only if the accounting data are complete. Debt and equity issue data are collected from Thomson One Banker / SDC for the same time period (except for the United States where the deals data are from the period 1988 to 2013). Deals identified as "withdrawn", "shelf" and "registration" as well as duplicate entries are then removed from the total sample (e.g. if a debt issue is offered in two markets on the same day, this would be shown as two separate records in the raw data but we would only keep the most recent one for the analysis). Moreover, in case there are multiple debt or multiple equity issues by the same firm in a fiscal year, only information on the most recent deal is recorded. Convertible instruments are not considered in the analysis due to their mixed equity and debt characteristics; nevertheless, it should be noted that there is only a relatively limited number of convertible deals in the sample, especially per country, so the impact of their exclusion is minimal. Finally, with regards to equity issues, I did not include Initial Public Offerings in the analysis due to the potential accounting- and disclosure-related issues that are associated with in the decision to go public, which may influence the results.

The data in the financial and deals databases are joined in the first instance based on SEDOL, CUSIP and company names. For the remaining observations, matches are manually made by considering partial and 'fuzzy' company name links. Following this approach, I am able to cover approximately 74% and 61% of the debt and equity deals, respectively, in the dataset (i.e. the issuers in Thomson One Banker could be linked with the firms in Compustat Global). Indicator variables are then created to identify whether a firm issued debt or equity in each period of a five-year time window relative to the financial data. As an example, for

a firm-year observation with financial data in 2000, a debt deal dummy variable in period t-2 would be 1 if the firm issued a bond in 1998 and an equity deal dummy variable in period t+1 would be 1 if additional equity was raised in 2001. Moreover, dummy variables are also used to distinguish between public and private issues for both deal types.

The raw Thomson One Banker dataset contains deals information from a total of 125 countries. To ensure sufficient observations and variation within data, I filter out countries with less than 50 unique issuers with available financials during the aforementioned time period. This results in a final sample for the equity deals analysis with 45 countries and 541,635 firm-year entries, while a final sample for the debt deals analysis includes 32 countries and 508,153 firm-year entries. Finally, for the firm-level regression analyses, I removed the outliers, by way of winsorizing (from both top and bottom end) and manually selecting ranges based on scatter plots, for each of the accounting variables that have no bounded minimum and maximum values in the merged dataset.

For the second part of the analysis, markets and institutional variables are specified to assess various determinants of conservatism at a country level. These reflect characteristics of the countries in scope with respect to their legal origin, market development and level of protection of investor rights. The data are sourced primarily from the various data files underlying the studies of La Porta et al. (1997, 1998, 2008)[33] and from the Financial Structure Database of the World Bank[34]. Table 2 presents the summary statistics of the 45 countries in the sample as well as provides the definitions of the variables.

[33] These are published on the webpage of Andrei Shleifer (https://scholar.harvard.edu/shleifer/publications)

[34] https://www.worldbank.org/en/publication/gfdr/data/financial-structure-database

### 4.2.2 Firm level regression models

Basu's (1997) piece-wise linear regression, which determines how contemporaneously sensitive the reported earnings are to bad news relative to good news (as proxied by stock returns), is by far the most commonly used model in conservatism research. For this paper, however, I base my analysis primarily on a different asymmetrical timeliness model following Ball and Shivakumar (2005, 2006) for the following reasons. The first, as previously mentioned, is that debt and equity deals influence the share prices of the issuers, both pre- and post-transactions, and therefore it would be difficult and/or cumbersome to separate the effects of conservatism from those of fundraising activities using a returns-based model such as Basu (1997). Furthermore, as Monahan (2008) pointed out in his discussion on the Ball et al. (2008) paper, applying the Basu regression in a cross-country setting implies that the extent to which returns reflect the news occurring during the year is the same for the different countries. This seems unlikely to be the case and could lead to measurement errors in the regression analysis. As good and bad news are assumed to be reflected in positive operating cash flows and negative operating cash flows, respectively, in the Ball and Shivakumar model, it circumvents the need for the returns-based assumptions. Please refer to section 3.3.1 in the Chapter 3 for the descriptions, explanations and interpretations of the Ball and Shivakumar accruals-based model for accounting conservatism. The main difference with respect to the execution of the regression analysis here is that the model in equation (1) is run for each country in the sample separately in order to obtain country-level estimates.

A key objective of this study is to analyze the influence of capital markets demand on conservatism. This is done by estimating separate interaction regression models for debt and equity issues and comparing the timeliness of reported earnings of firms that raise financing within a specific time window surrounding a reporting year with firms that do not. Further details can be found in

Chapter 3 where the regression model is expressed in equation (2). The final analysis at the company level is to investigate whether the reporting behavior of firms in each country is affected by the financial crisis as well as the temporal effects of equity and debt issues on conservatism. To do this, I follow the same approach as described in Chapter 3 for each of the countries in the sample.

### 4.2.3 Country level regression models

While the focus of the first stage of this research is on understanding how capital structure decisions affect firms' reporting behavior and the drivers behind such relationship, the second stage is concerned with the indirect effects that the different countries' institutional frameworks may have on accounting conservatism. The approach follows Ball et al. (2008), where the relevant coefficients reflecting the aggregate conservatism measures of the firms in a country – i.e. $\alpha_5$ and $\alpha_{11}$ in model (2) above, which respectively indicate asymmetrical timeliness and incremental timeliness of loss recognition of issuers – are regressed on macro-level variables that capture various institutional characteristics of the country. It is appropriate to treat a financial reporting property in this way given that firms in a given country are subject to the same accounting, regulatory and litigation regime. Furthermore, an additional advantage of a country-level setup is that the results of the analysis are not skewed towards countries with more companies (e.g. firms based in the United States make up almost 30% of the total sample, whereas several other countries contribute less than 1% each). Considering the law and order environment in which firms operate is important because it determines how effective conditional conservatism could serve as a governance and contracting mechanism (Li, 2015). From the debtholders' perspective, for instance, it would not matter much to trigger a default if creditor rights are not well protected or carry less priority over other parties. Likewise, if legal enforcement is weak or it is costly for shareholders to

take action against managers, the role of timeliness in loss recognition in mitigating the agency problems would arguably be rather limited. With regards to financial reporting, there is also evidence that the positive effects of better accounting standards on the quality financial reporting and capital markets are present only in countries with effective legal environments and strong enforcement (Leuz et al., 2003; Daske et al., 2008; Holthausen, 2009; Christensen et al., 2013; Wang and Yu, 2015).

In studying the factors that could explain the variation in conservatism across the world, I consider three categories of variables relating to the legal, institutional and market aspects of the different countries. The relevance and significance of these variables on financial markets have been well established in La Porta et al. (1997, 1998). In terms of legal origins, common law countries provide the greatest protection to shareholders and creditors, followed by German civil law, Scandinavian civil law and finally French civil law countries. Evidence for relationships between financial reporting and legal traditions can also be found in Bushman and Petrioski (2006) as well as Ball et al. (2000 and 2003), where it is shown that conservatism is observed more in common law countries.

With regards to institutional factors, the model includes creditor rights (*Creditor*), private and public enforcement indices (*PriEnforce* and *PubEnforce*), assessment of risk of expropriation by the government (*RiskExp*), assessment of the country's rule of law (*RuleLaw*) and assessment of corruption in government (*Corruption*). The variable *Creditor* measures the extent to which the rights of creditors (specifically, senior secured lenders) are protected by the bankruptcy and reorganization laws in default (or defaulting) situations. Based on La Porta et al. (2006), the private enforcement index captures the strength of the disclosure requirements, to which prospectuses prepared by securities issuers are subject, and the procedural difficulty in recovering losses from the firms' directors, distributors and accountants. The public enforcement index takes into account certain

characteristics (specifically, independence, appointment, tenure and focus) of the official authority in charge of supervising the securities markets, the supervisor's investigative powers, as well as the applicability of criminal and noncriminal sanctions for violations of securities laws. The last three variables – *RiskExp*, *RuleLaw* and *Corruption* – are proxies for the strength of the legal enforcement system in the countries as assessed by private credit risk agencies for foreign investors interested in doing business in the respective markets (La Porta et al., 1998)[35,36].

It is not clear how these institutional measures would impact accounting conservatism. One could argue, on the one hand, that weak institutions would be associated with a lower financial reporting quality due to lax regulation, lenient enforcement and interference by governmental or outside forces. Scoring low on creditor rights protection, risk of expropriation, corruption perception and rule of law assessment is also an indication that the capital markets would likely be less developed in terms of size and breadth of investors. Conversely, it could also be the case that the demand for asymmetrical timeliness would be stronger as a substitution for the lack of protection for shareholder as well as creditor rights. In their study of 22 countries over the period 1992 – 2003, Ball et al. (2008) do not

[35] These three measures of the quality of institutions are highly correlated (the pair-wise correlations between them are greater than 0.8). They are therefore separately included in the regression models. The results are robust with the use of any of these variables.

[36] Moreover, it should be noted that the assessments of risk of expropriation, rule of law and corruption are rather dated, as they represent average monthly index scores of the respective measures between 1982 and 1995 as published in the International Country Risk guide. It could be argued, however, that these country characteristics are not likely to significantly change over time.

find any significant relationship between (the Basu measure of) conservatism and institutional factors.

Four country variables that relate to the development of the markets are included in this analysis. The first is the growth in GDP per capita over the period 1979 to 2003, which is included based on the finding that this measure of national wealth is positively correlated with more developed stock markets (La Porta et al., 2006). To take into account the size of the capital markets in each country, I use the average ratio of the stock market capitalization to GDP (for equity) as well as the average ratio of the total domestic bond market capitalization (i.e. sum of public and private issues) to GDP (for debt), for the period 1999 to 2003[37]. The breadth of the stock market is captured by the average ratio of the number of domestic firms listed in a given country to its population over the same five-year period. I would predict that conservatism should have a complementary effect on the level of market developments. A developed debt market should be associated with greater reporting quality to cater to the strong demand from debtholders for asymmetrical timeliness, which facilitates an efficient transfer of control from insiders to creditors following economic losses. Similarly, conservatism should arguably be more prevalent in economies with more advanced equity markets, as investors would expect it as a governance mechanism that limits managers' ability to manipulate financial performance at the expense of the shareholders.

The country-level regression model is written as:

[37] Since the country-level analysis is not based on panel data, using country variables that capture average characteristics of the period 1999 to 2003 should be appropriate because this five-year block is right in the middle of the timeline of the sample of this paper. Nevertheless, running the regressions with average market sizes as per 2011 (latest available data at the time of this writing) would not lead to the similar outcomes.

$$\alpha_{jk} = \beta_0 + \beta_1 dBritish_k + \beta_2 dFrench_k + \beta_3 dScandinavia_k + \beta_4 GDPCapGr_k + \beta_5 MktCap\_GDP_k + \beta_6 Ln(Firms\_Pop)_k + \beta_7 Bond\_GDP_k + \beta_8 Creditor_k + \beta_9 PriEnforce_k + \beta_{10} PubEnforce_k + \beta_{11} LegalEnforcement_k + \varepsilon_k \quad (7)$$

where $\alpha_{jk}$ denotes the coefficient $j$ for country $k$ from equation (2); *dBritish*, *dFrench* and *dScandinavia* are dummy variables indicating the legal origins of the countries in the sample (with the German legal tradition serving as the basis); *GDPCapGr* is the growth in GDP per capita as of 2003; *MktCap_GDP* is the five-year average ratio of stock market capitalization to GDP as of 2003; *Ln(Firms_Pop)* is the natural log of the five-year average ratio of the number of listed firms in a country to its population as of 2003; *Bond_GDP* is the five-year average ratio of bond market capitalization to GDP as of 2003; *Creditor* refers to the creditor rights index aggregate score per 2003; *PriEnforce* denotes the private enforcement index; *PubEnforce* is the public enforcement index; and *LegalEnforcement* represents one of the three variables (*RiskExp*, *RuleLaw* and *Corruption*) that are proxies for the strength of the law and order tradition in the country. It is important to note that, since the objective of this second-stage analysis is to examine the impact of country factors on the two specific aggregate conservatism measures – i.e. the asymmetrical timeliness of loss recognition and the *incremental* effect of debt and equity issue – the dependent variables of interest in model (7) above are $\alpha_5$ and $\alpha_{11}$, respectively, of the countries from the first-stage regressions. As the pre- and post-deal effects are estimated in the different models in the firm-level analysis, I am also able to assess to what extent the country variables can explain for the timing of conservatism.

Furthermore, to account for the bias caused by unobserved heterogeneity in the estimations of the firm-level interaction coefficients, I use a weighted least square (WLS) model where the conservatism measures are scaled by their absolute standard errors. The WLS approach also enhances the efficiency of the model, as

countries with smaller errors (i.e. contain more information) would get larger weights than those with larger measurement errors; this is especially relevant given that the dependent variables here are coefficients estimates from different countries with different underlying sample sizes.

## 4.3 Results

### 4.3.1 Descriptive statistics

Descriptive statistics of the firms in the sample are shown in Table 1, which is further divided into three subsections. Table 4.1A presents the company level variables organized by country and by legal origin. Table 4.1B then exhibits the same variables in a similar setup but with a breakdown per sub-period. The first sub-period covers the years 1987 to 1997; the second covers 1998 to 2006; the third represents the financial crisis period 2007 to 2009; and the last sub-period relates to the post-crisis years in the data set, i.e. 2010 to 2015. It should be noted that the statistics shown are the median for all numeric variables and the mean for indicator variables. Finally, Table 4.1C summarizes the means and medians for the regression variables separately for debt-issuing and equity-issuing firms.

From Table 4.1A, it is evident that the US is by far the largest country in terms of the number of public companies in the sample, followed by Japan and China; the least represented countries, on the other hand, are Colombia, Luxembourg and Portugal. The majority of the countries (20 out of 45) have French legal origins. The rest consist of 13 English common law countries, 8 nations in the German legal family and four Scandinavian legal origin countries. Looking at the financial variables, the accruals are consistently negative across the sample; this is to be expected considering the difference due to depreciation as well as the income smoothing role of accruals. Firms in the sample exhibit growth in revenues across the board, ranging from 0.5% for Australia (median of all

## Table 4.1: Descriptive statistics firm variables

*Table 4.1A: Descriptive statistics per country*

| Country | Statistics | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | dDebt | dEquity | # obs |
|---|---|---|---|---|---|---|---|---|---|---|
| *English legal origin countries* | | | | | | | | | | |
| Australia | Mean | -0.157 | 0.107 | 0.632 | -0.254 | 3.273 | 0.578 | 0.011 | 0.391 | 24,840 |
| | Median | -0.054 | 0.005 | 0.392 | -0.034 | 2.981 | 1.000 | 0.000 | 0.000 | |
| United Kingdom | Mean | -0.082 | 0.156 | 0.513 | -0.021 | 4.015 | 0.271 | 0.028 | 0.153 | 31,134 |
| | Median | -0.057 | 0.049 | 0.403 | 0.069 | 3.874 | 0.000 | 0.000 | 0.000 | |
| Hong Kong | Mean | -0.014 | 0.070 | 0.558 | 0.057 | 8.114 | 0.206 | 0.019 | 0.123 | 2,596 |
| | Median | -0.015 | 0.021 | 0.466 | 0.044 | 7.856 | 0.000 | 0.000 | 0.000 | |
| India | Mean | 0.002 | 0.197 | 0.609 | 0.033 | 6.780 | 0.284 | 0.012 | 0.042 | 46,201 |
| | Median | -0.018 | 0.066 | 0.559 | 0.036 | 6.636 | 0.000 | 0.000 | 0.000 | |
| Ireland | Mean | -0.078 | 0.135 | 0.568 | -0.013 | 4.670 | 0.255 | n/a | 0.161 | 1,382 |
| | Median | -0.042 | 0.040 | 0.490 | 0.051 | 4.683 | 0.000 | n/a | 0.000 | |
| Israel | Mean | -0.206 | -0.075 | 0.427 | -0.134 | 5.246 | 0.323 | n/a | 0.043 | 4,051 |
| | Median | -0.034 | 0.034 | 0.270 | 0.040 | 5.261 | 0.000 | n/a | 0.000 | |
| Sri Lanka | Mean | -0.002 | 0.113 | 0.726 | 0.063 | 7.756 | 0.227 | n/a | 0.029 | 2,110 |
| | Median | -0.019 | 0.071 | 0.748 | 0.061 | 7.797 | 0.000 | n/a | 0.000 | |
| Malaysia | Mean | -0.026 | 0.069 | 0.616 | 0.051 | 5.609 | 0.231 | 0.016 | 0.074 | 14,651 |
| | Median | -0.023 | 0.031 | 0.582 | 0.044 | 5.411 | 0.000 | 0.000 | 0.000 | |
| New Zealand | Mean | -0.062 | 0.121 | 0.646 | -0.017 | 4.699 | 0.228 | 0.026 | 0.122 | 2,181 |
| | Median | -0.037 | 0.036 | 0.520 | 0.066 | 4.822 | 0.000 | 0.000 | 0.000 | |
| Singapore | Mean | -0.018 | 0.102 | 0.545 | 0.046 | 5.058 | 0.257 | 0.024 | 0.127 | 9,409 |
| | Median | -0.022 | 0.036 | 0.464 | 0.047 | 4.860 | 0.000 | 0.000 | 0.000 | |
| Thailand | Mean | -0.033 | 0.084 | 0.792 | 0.083 | 7.889 | 0.186 | 0.039 | 0.092 | 7,353 |
| | Median | -0.039 | 0.047 | 0.767 | 0.080 | 7.635 | 0.000 | 0.000 | 0.000 | |
| United States | Mean | -0.058 | 0.103 | 0.490 | 0.031 | 5.683 | 0.231 | 0.054 | 0.057 | 155,92 |
| | Median | -0.043 | 0.034 | 0.356 | 0.056 | 5.605 | 0.000 | 0.000 | 0.000 | |
| South Africa | Mean | -0.022 | 0.232 | 0.486 | 0.101 | 6.923 | 0.169 | 0.005 | 0.040 | 4,577 |
| | Median | -0.028 | 0.105 | 0.350 | 0.088 | 7.009 | 0.000 | 0.000 | 0.000 | |
| *French legal origin countries* | | | | | | | | | | |
| Argentina | Mean | -0.060 | 0.173 | 0.887 | 0.088 | 6.367 | 0.142 | 0.065 | 0.086 | 1,124 |
| | Median | -0.053 | 0.099 | 0.828 | 0.080 | 6.411 | 0.000 | 0.000 | 0.000 | |
| Belgium | Mean | -0.032 | 0.097 | 0.684 | 0.050 | 6.555 | 0.123 | 0.038 | 0.088 | 2,130 |
| | Median | -0.030 | 0.037 | 0.613 | 0.041 | 6.255 | 0.000 | 0.000 | 0.000 | |

| Country | Statistics | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | dDebt | dEquity | # obs |
|---|---|---|---|---|---|---|---|---|---|---|
| Brazil | Mean | -0.105 | 0.132 | 0.761 | 0.038 | 6.928 | 0.174 | 0.089 | 0.126 | 5,307 |
| | Median | -0.035 | 0.059 | 0.625 | 0.034 | 6.854 | 0.000 | 0.000 | 0.000 | |
| Chile | Mean | -0.018 | 0.074 | 0.892 | 0.065 | 10.590 | 0.125 | 0.049 | 0.097 | 2,726 |
| | Median | -0.034 | 0.040 | 0.889 | 0.068 | 10.843 | 0.000 | 0.000 | 0.000 | |
| Colombia | Mean | -0.010 | 0.108 | 0.719 | 0.069 | 13.906 | 0.103 | n/a | 0.095 | 503 |
| | Median | -0.019 | 0.047 | 0.761 | 0.057 | 13.886 | 0.000 | n/a | 0.000 | |
| Egypt | Mean | 0.009 | 0.086 | 0.519 | 0.063 | 6.534 | 0.146 | n/a | 0.073 | 1,072 |
| | Median | 0.005 | 0.040 | 0.506 | 0.028 | 6.480 | 0.000 | n/a | 0.000 | |
| Spain | Mean | -0.001 | 0.099 | 0.713 | 0.036 | 8.165 | 0.083 | 0.029 | 0.122 | 2,688 |
| | Median | 0.007 | 0.036 | 0.672 | 0.000 | 8.123 | 0.000 | 0.000 | 0.000 | |
| France | Mean | -0.034 | 0.111 | 0.428 | 0.037 | 5.739 | 0.156 | 0.046 | 0.103 | 12,778 |
| | Median | -0.030 | 0.048 | 0.319 | 0.044 | 5.485 | 0.000 | 0.000 | 0.000 | |
| Greece | Mean | -0.024 | 0.056 | 0.569 | 0.032 | 5.605 | 0.254 | n/a | 0.026 | 3,020 |
| | Median | -0.027 | 0.018 | 0.531 | 0.017 | 5.084 | 0.000 | n/a | 0.000 | |
| Indonesia | Mean | -0.028 | 0.198 | 0.803 | 0.067 | 12.966 | 0.238 | 0.024 | 0.060 | 5,264 |
| | Median | -0.033 | 0.087 | 0.713 | 0.055 | 13.348 | 0.000 | 0.000 | 0.000 | |
| Italy | Mean | -0.037 | 0.079 | 0.481 | 0.043 | 7.740 | 0.195 | 0.037 | 0.086 | 4,402 |
| | Median | -0.036 | 0.031 | 0.370 | 0.045 | 6.323 | 0.000 | 0.000 | 0.000 | |
| Luxembourg | Mean | -0.358 | 0.145 | 0.656 | 0.065 | 6.589 | 0.169 | n/a | 0.125 | 596 |
| | Median | -0.044 | 0.038 | 0.534 | 0.057 | 6.569 | 0.000 | n/a | 0.000 | |
| Mexico | Mean | -0.038 | 0.098 | 0.847 | 0.082 | 9.246 | 0.103 | 0.123 | 0.151 | 1,956 |
| | Median | -0.040 | 0.076 | 0.887 | 0.078 | 9.245 | 0.000 | 0.000 | 0.000 | |
| Netherlands | Mean | -0.072 | 0.155 | 0.641 | 0.071 | 6.174 | 0.140 | 0.043 | 0.115 | 3,326 |
| | Median | -0.039 | 0.060 | 0.526 | 0.076 | 6.149 | 0.000 | 0.000 | 0.000 | |
| Peru | Mean | -0.038 | 0.079 | 1.094 | 0.110 | 6.025 | 0.135 | 0.064 | 0.083 | 1,299 |
| | Median | -0.038 | 0.045 | 1.041 | 0.085 | 6.007 | 0.000 | 0.000 | 0.000 | |
| Philippines | Mean | -0.044 | 0.210 | 0.747 | 0.018 | 8.009 | 0.284 | 0.036 | 0.090 | 2,766 |
| | Median | -0.033 | 0.013 | 0.617 | 0.042 | 8.163 | 0.000 | 0.000 | 0.000 | |
| Portugal | Mean | -0.114 | 0.487 | 0.878 | -0.162 | 7.527 | 0.154 | n/a | 0.104 | 960 |
| | Median | -0.048 | 0.023 | 0.779 | 0.059 | 7.283 | 0.000 | n/a | 0.000 | |
| Russia | Mean | -0.015 | 0.434 | 1.010 | 0.100 | 9.253 | 0.201 | 0.056 | 0.090 | 2,740 |
| | Median | -0.030 | 0.101 | 0.734 | 0.074 | 9.280 | 0.000 | 0.000 | 0.000 | |
| Turkey | Mean | 0.001 | 0.217 | 0.784 | 0.047 | 7.305 | 0.238 | n/a | 0.045 | 3,258 |
| | Median | -0.008 | 0.098 | 0.665 | 0.019 | 5.697 | 0.000 | n/a | 0.000 | |
| Vietnam | Mean | 0.020 | 0.209 | 0.558 | 0.068 | 13.145 | 0.302 | n/a | 0.084 | 3,101 |
| | Median | 0.014 | 0.118 | 0.464 | 0.053 | 13.078 | 0.000 | n/a | 0.000 | |

| Country | Statistics | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | dDebt | dEquity | # obs |
|---|---|---|---|---|---|---|---|---|---|---|
| *German legal origin countries* | | | | | | | | | | |
| Austria | Mean | -0.035 | 0.108 | 0.767 | 0.055 | 6.471 | 0.116 | 0.040 | 0.082 | 1,632 |
| | Median | -0.033 | 0.042 | 0.754 | 0.050 | 6.506 | 0.000 | 0.000 | 0.000 | |
| Switzerland | Mean | -0.044 | 0.062 | 0.677 | 0.063 | 6.254 | 0.108 | 0.052 | 0.090 | 4,195 |
| | Median | -0.037 | 0.024 | 0.571 | 0.075 | 6.147 | 0.000 | 0.000 | 0.000 | |
| China | Mean | 0.004 | 0.145 | 0.538 | 0.065 | 7.233 | 0.180 | 0.027 | 0.070 | 37,271 |
| | Median | -0.004 | 0.073 | 0.486 | 0.051 | 7.114 | 0.000 | 0.000 | 0.000 | |
| Germany | Mean | -0.036 | 0.132 | 0.653 | 0.027 | 5.171 | 0.197 | 0.024 | 0.077 | 13,316 |
| | Median | -0.033 | 0.047 | 0.512 | 0.037 | 5.010 | 0.000 | 0.000 | 0.000 | |
| Japan | Mean | -0.023 | 0.041 | 0.665 | 0.040 | 10.767 | 0.103 | 0.063 | 0.099 | 63,961 |
| | Median | -0.020 | 0.023 | 0.612 | 0.033 | 10.607 | 0.000 | 0.000 | 0.000 | |
| South Korea | Mean | -0.040 | 0.079 | 0.570 | 0.049 | 12.713 | 0.253 | 0.147 | 0.226 | 11,562 |
| | Median | -0.034 | 0.049 | 0.562 | 0.048 | 12.408 | 0.000 | 0.000 | 0.000 | |
| Poland | Mean | -0.013 | 0.300 | 0.485 | 0.040 | 4.233 | 0.262 | n/a | 0.041 | 6,149 |
| | Median | -0.030 | 0.091 | 0.352 | 0.052 | 4.328 | 0.000 | n/a | 0.000 | |
| Taiwan | Mean | -0.028 | 0.074 | 0.545 | 0.065 | 8.164 | 0.228 | 0.012 | 0.071 | 19,617 |
| | Median | -0.034 | 0.032 | 0.479 | 0.064 | 7.978 | 0.000 | 0.000 | 0.000 | |
| *Scandinavian legal origin countries* | | | | | | | | | | |
| Denmark | Mean | -0.029 | 0.088 | 0.615 | 0.034 | 6.739 | 0.203 | n/a | 0.076 | 2,703 |
| | Median | -0.038 | 0.050 | 0.548 | 0.059 | 6.623 | 0.000 | n/a | 0.000 | |
| Finland | Mean | -0.045 | 0.104 | 0.578 | 0.066 | 5.840 | 0.132 | 0.054 | 0.109 | 2,467 |
| | Median | -0.041 | 0.053 | 0.460 | 0.073 | 5.682 | 0.000 | 0.000 | 0.000 | |
| Norway | Mean | -0.053 | 0.131 | 0.606 | 0.003 | 6.785 | 0.273 | 0.023 | 0.129 | 3,390 |
| | Median | -0.044 | 0.044 | 0.460 | 0.045 | 6.707 | 0.000 | 0.000 | 0.000 | |
| Sweden | Mean | -0.065 | 0.178 | 0.388 | -0.055 | 5.790 | 0.346 | 0.022 | 0.131 | 7,948 |
| | Median | -0.041 | 0.060 | 0.227 | 0.030 | 5.701 | 0.000 | 0.000 | 0.000 | |

*Table 4.1B: Descriptive statistics per country per sub-period*

| | | *Median* | *Median* | *Median* | *Median* | *Median* | *Mean* | *Mean* | *Mean* | *Count* |
|---|---|---|---|---|---|---|---|---|---|---|
| Country | Period | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | dDebt | dEquity | # obs |
| *English legal origin countries* | | | | | | | | | | |
| Australia | Pre-crisis 1 | -0.016 | 0.038 | 0.620 | 0.000 | 4.855 | 0.184 | 0.026 | 0.179 | 1,638 |
| | Pre-crisis 2 | -0.053 | 0.029 | 0.349 | -0.018 | 2.855 | 0.535 | 0.012 | 0.361 | 8,977 |
| | Crisis | -0.056 | 0.009 | 0.359 | -0.056 | 2.852 | 0.638 | 0.005 | 0.425 | 4,533 |
| | Post-crisis | -0.063 | 0.000 | 0.399 | -0.055 | 2.935 | 0.656 | 0.009 | 0.438 | 9,692 |
| United Kingdom | Pre-crisis 1 | -0.053 | 0.078 | 0.633 | 0.096 | 4.384 | 0.077 | 0.037 | 0.086 | 6,713 |
| | Pre-crisis 2 | -0.068 | 0.062 | 0.382 | 0.075 | 3.588 | 0.298 | 0.028 | 0.137 | 12,737 |
| | Crisis | -0.050 | 0.033 | 0.232 | 0.048 | 3.615 | 0.369 | 0.021 | 0.205 | 4,339 |
| | Post-crisis | -0.048 | 0.022 | 0.231 | 0.051 | 3.954 | 0.345 | 0.023 | 0.216 | 7,345 |
| Hong Kong | Pre-crisis 1 | 0.022 | 0.042 | 0.638 | 0.017 | 7.848 | 0.085 | 0.025 | 0.068 | 353 |
| | Pre-crisis 2 | -0.027 | 0.012 | 0.449 | 0.047 | 7.601 | 0.202 | 0.019 | 0.122 | 917 |
| | Crisis | -0.017 | 0.015 | 0.408 | 0.046 | 7.810 | 0.241 | 0.005 | 0.122 | 394 |
| | Post-crisis | -0.011 | 0.020 | 0.441 | 0.047 | 8.121 | 0.242 | 0.023 | 0.145 | 932 |
| India | Pre-crisis 1 | -0.016 | 0.053 | 0.607 | 0.026 | 5.314 | 0.330 | 0.000 | 0.001 | 1,568 |
| | Pre-crisis 2 | -0.016 | 0.075 | 0.586 | 0.030 | 6.061 | 0.279 | 0.005 | 0.014 | 17,780 |
| | Crisis | -0.012 | 0.087 | 0.569 | 0.043 | 7.009 | 0.283 | 0.017 | 0.062 | 8,484 |
| | Post-crisis | -0.022 | 0.049 | 0.508 | 0.040 | 7.322 | 0.285 | 0.017 | 0.067 | 18,369 |
| Ireland | Pre-crisis 1 | 0.003 | 0.080 | 0.645 | 0.000 | 4.393 | 0.052 | n/a | 0.091 | 307 |
| | Pre-crisis 2 | -0.057 | 0.046 | 0.490 | 0.067 | 4.636 | 0.298 | n/a | 0.132 | 568 |
| | Crisis | -0.056 | 0.000 | 0.254 | 0.040 | 4.603 | 0.374 | n/a | 0.242 | 190 |
| | Post-crisis | -0.037 | 0.024 | 0.306 | 0.052 | 5.257 | 0.306 | n/a | 0.235 | 317 |
| Israel | Pre-crisis 1 | -0.022 | 0.085 | 0.407 | 0.053 | 5.848 | 0.161 | n/a | 0.065 | 93 |
| | Pre-crisis 2 | -0.031 | 0.081 | 0.326 | 0.039 | 4.860 | 0.323 | n/a | 0.046 | 1,045 |
| | Crisis | -0.041 | 0.023 | 0.241 | 0.051 | 5.346 | 0.279 | n/a | 0.029 | 786 |
| | Post-crisis | -0.033 | 0.016 | 0.251 | 0.037 | 5.329 | 0.346 | n/a | 0.045 | 2,127 |
| Sri Lanka | Pre-crisis 1 | -0.035 | 0.193 | 0.662 | 0.140 | 7.225 | 0.189 | n/a | 0.000 | 37 |
| | Pre-crisis 2 | -0.025 | 0.104 | 0.608 | 0.059 | 7.443 | 0.179 | n/a | 0.003 | 390 |
| | Crisis | -0.026 | 0.058 | 0.797 | 0.059 | 7.460 | 0.228 | n/a | 0.012 | 521 |
| | Post-crisis | -0.016 | 0.063 | 0.755 | 0.061 | 8.092 | 0.244 | n/a | 0.049 | 1,162 |
| Malaysia | Pre-crisis 1 | 0.044 | 0.078 | 0.605 | 0.000 | 5.981 | 0.129 | 0.026 | 0.056 | 1,329 |
| | Pre-crisis 2 | -0.027 | 0.026 | 0.601 | 0.042 | 5.286 | 0.260 | 0.013 | 0.057 | 6,023 |
| | Crisis | -0.038 | 0.028 | 0.529 | 0.066 | 5.330 | 0.207 | 0.014 | 0.061 | 2,510 |
| | Post-crisis | -0.024 | 0.026 | 0.569 | 0.052 | 5.468 | 0.237 | 0.018 | 0.107 | 4,789 |

| Country | Period | *Median* Accruals | *Median* Δ Sales | *Median* PPE | *Median* CFO | *Median* Ln (TA $_{t-1}$) | *Mean* dNegCFO | *Mean* dDebt | *Mean* dEquity | *Count* # obs |
|---|---|---|---|---|---|---|---|---|---|---|
| New Zealand | Pre-crisis 1 | -0.003 | 0.015 | 0.659 | 0.040 | 5.963 | 0.026 | 0.026 | 0.071 | 155 |
| | Pre-crisis 2 | -0.038 | 0.051 | 0.626 | 0.073 | 4.588 | 0.195 | 0.012 | 0.079 | 925 |
| | Crisis | -0.041 | 0.029 | 0.461 | 0.056 | 4.786 | 0.281 | 0.034 | 0.171 | 356 |
| | Post-crisis | -0.040 | 0.024 | 0.407 | 0.062 | 4.905 | 0.287 | 0.041 | 0.166 | 745 |
| Singapore | Pre-crisis 1 | 0.024 | 0.044 | 0.574 | 0.000 | 5.537 | 0.122 | 0.029 | 0.074 | 769 |
| | Pre-crisis 2 | -0.029 | 0.052 | 0.515 | 0.055 | 4.636 | 0.249 | 0.016 | 0.099 | 3,419 |
| | Crisis | -0.029 | 0.040 | 0.422 | 0.070 | 4.822 | 0.239 | 0.012 | 0.148 | 1,726 |
| | Post-crisis | -0.023 | 0.019 | 0.409 | 0.042 | 4.970 | 0.304 | 0.037 | 0.156 | 3,495 |
| Thailand | Pre-crisis 1 | 0.002 | 0.068 | 0.646 | 0.016 | 7.499 | 0.180 | 0.020 | 0.024 | 500 |
| | Pre-crisis 2 | -0.045 | 0.056 | 0.796 | 0.081 | 7.628 | 0.179 | 0.033 | 0.081 | 2,632 |
| | Crisis | -0.053 | 0.011 | 0.773 | 0.088 | 7.591 | 0.182 | 0.039 | 0.082 | 1,259 |
| | Post-crisis | -0.033 | 0.048 | 0.759 | 0.084 | 7.677 | 0.195 | 0.048 | 0.117 | 2,962 |
| United States | Pre-crisis 1 | -0.038 | 0.055 | 0.437 | 0.051 | 4.639 | 0.247 | 0.048 | 0.047 | 59,252 |
| | Pre-crisis 2 | -0.044 | 0.037 | 0.322 | 0.052 | 5.723 | 0.239 | 0.052 | 0.056 | 54,778 |
| | Crisis | -0.053 | 0.009 | 0.272 | 0.065 | 6.446 | 0.201 | 0.049 | 0.067 | 14,876 |
| | Post-crisis | -0.044 | 0.018 | 0.288 | 0.063 | 6.778 | 0.195 | 0.082 | 0.089 | 27,017 |
| South Africa | Pre-crisis 1 | 0.048 | 0.093 | 0.515 | 0.000 | 7.804 | 0.067 | 0.000 | 0.012 | 434 |
| | Pre-crisis 2 | -0.037 | 0.146 | 0.342 | 0.109 | 6.529 | 0.165 | 0.003 | 0.018 | 1,952 |
| | Crisis | -0.022 | 0.120 | 0.300 | 0.094 | 6.734 | 0.186 | 0.004 | 0.053 | 778 |
| | Post-crisis | -0.033 | 0.068 | 0.346 | 0.075 | 7.465 | 0.195 | 0.010 | 0.075 | 1,413 |
| *French legal origin countries* | | | | | | | | | | |
| Argentina | Pre-crisis 1 | -0.007 | 0.022 | 0.000 | 0.000 | 6.904 | 0.067 | 0.283 | 0.333 | 60 |
| | Pre-crisis 2 | -0.058 | 0.053 | 0.802 | 0.063 | 5.853 | 0.117 | 0.044 | 0.063 | 496 |
| | Crisis | -0.067 | 0.108 | 0.908 | 0.105 | 6.383 | 0.098 | 0.026 | 0.052 | 194 |
| | Post-crisis | -0.045 | 0.220 | 0.846 | 0.085 | 6.684 | 0.211 | 0.077 | 0.096 | 374 |
| Belgium | Pre-crisis 1 | 0.025 | 0.037 | 0.724 | 0.000 | 9.690 | 0.015 | 0.035 | 0.049 | 344 |
| | Pre-crisis 2 | -0.037 | 0.062 | 0.645 | 0.054 | 6.092 | 0.132 | 0.024 | 0.061 | 873 |
| | Crisis | -0.042 | 0.020 | 0.468 | 0.073 | 5.122 | 0.146 | 0.033 | 0.112 | 329 |
| | Post-crisis | -0.045 | 0.021 | 0.575 | 0.059 | 5.418 | 0.161 | 0.064 | 0.137 | 584 |
| Brazil | Pre-crisis 1 | 0.000 | 0.043 | 0.595 | 0.000 | 7.700 | 0.111 | 0.125 | 0.116 | 415 |
| | Pre-crisis 2 | -0.029 | 0.071 | 0.760 | 0.000 | 6.413 | 0.157 | 0.067 | 0.074 | 2,308 |
| | Crisis | -0.048 | 0.054 | 0.655 | 0.085 | 6.812 | 0.207 | 0.075 | 0.135 | 858 |
| | Post-crisis | -0.046 | 0.049 | 0.421 | 0.067 | 7.381 | 0.195 | 0.117 | 0.193 | 1,726 |

| Country | Period | *Median* Accruals | *Median* Δ Sales | *Median* PPE | *Median* CFO | *Median* Ln ($TA_{t-1}$) | *Mean* dNegCFO | *Mean* dDebt | *Mean* dEquity | *Count* # obs |
|---|---|---|---|---|---|---|---|---|---|---|
| Chile | Pre-crisis 1 | 0.090 | 0.114 | 1.075 | 0.000 | 9.265 | 0.009 | 0.047 | 0.147 | 211 |
| | Pre-crisis 2 | -0.043 | 0.042 | 0.954 | 0.084 | 11.073 | 0.098 | 0.056 | 0.086 | 1,155 |
| | Crisis | -0.036 | 0.044 | 0.960 | 0.081 | 11.410 | 0.176 | 0.077 | 0.108 | 443 |
| | Post-crisis | -0.032 | 0.025 | 0.689 | 0.064 | 10.573 | 0.162 | 0.027 | 0.095 | 917 |
| Colombia | Pre-crisis 1 | 0.053 | 0.097 | 0.742 | 0.000 | 12.058 | 0.000 | n/a | 0.122 | 49 |
| | Pre-crisis 2 | -0.015 | 0.049 | 0.780 | 0.050 | 13.655 | 0.120 | n/a | 0.046 | 175 |
| | Crisis | -0.014 | 0.034 | 0.707 | 0.077 | 14.013 | 0.096 | n/a | 0.120 | 83 |
| | Post-crisis | -0.033 | 0.042 | 0.737 | 0.073 | 14.515 | 0.117 | n/a | 0.122 | 196 |
| Egypt | Pre-crisis 1 | -0.016 | 0.020 | 1.202 | 0.055 | 8.039 | 0.000 | n/a | 0.000 | 1 |
| | Pre-crisis 2 | 0.058 | 0.068 | 0.000 | 0.000 | 6.324 | 0.053 | n/a | 0.057 | 263 |
| | Crisis | 0.040 | 0.051 | 0.000 | 0.000 | 6.505 | 0.058 | n/a | 0.132 | 190 |
| | Post-crisis | -0.019 | 0.029 | 0.705 | 0.055 | 6.564 | 0.212 | n/a | 0.062 | 618 |
| Spain | Pre-crisis 1 | 0.035 | 0.042 | 0.857 | 0.000 | 10.882 | 0.000 | 0.037 | 0.079 | 517 |
| | Pre-crisis 2 | 0.034 | 0.059 | 0.701 | 0.000 | 8.629 | 0.038 | 0.023 | 0.088 | 1,066 |
| | Crisis | -0.048 | 0.031 | 0.546 | 0.077 | 6.677 | 0.141 | 0.026 | 0.138 | 348 |
| | Post-crisis | -0.044 | 0.012 | 0.506 | 0.053 | 6.545 | 0.178 | 0.033 | 0.191 | 757 |
| France | Pre-crisis 1 | 0.020 | 0.052 | 0.493 | 0.000 | 7.720 | 0.018 | 0.037 | 0.078 | 2,035 |
| | Pre-crisis 2 | -0.034 | 0.070 | 0.326 | 0.055 | 5.335 | 0.159 | 0.034 | 0.071 | 5,429 |
| | Crisis | -0.046 | 0.029 | 0.228 | 0.068 | 4.643 | 0.181 | 0.043 | 0.101 | 1,834 |
| | Post-crisis | -0.040 | 0.031 | 0.257 | 0.055 | 4.740 | 0.221 | 0.071 | 0.169 | 3,480 |
| Greece | Pre-crisis 1 | 0.090 | 0.148 | 0.745 | 0.000 | 10.275 | 0.000 | n/a | 0.022 | 46 |
| | Pre-crisis 2 | 0.010 | 0.067 | 0.558 | 0.000 | 5.656 | 0.166 | n/a | 0.027 | 1,148 |
| | Crisis | -0.023 | 0.021 | 0.456 | 0.032 | 4.858 | 0.312 | n/a | 0.023 | 642 |
| | Post-crisis | -0.053 | -0.015 | 0.538 | 0.021 | 4.600 | 0.318 | n/a | 0.028 | 1,184 |
| Indonesia | Pre-crisis 1 | 0.015 | 0.116 | 0.735 | 0.016 | 12.847 | 0.225 | 0.055 | 0.129 | 311 |
| | Pre-crisis 2 | -0.051 | 0.083 | 0.694 | 0.054 | 13.151 | 0.235 | 0.022 | 0.044 | 1,888 |
| | Crisis | -0.038 | 0.110 | 0.756 | 0.063 | 13.343 | 0.251 | 0.028 | 0.063 | 864 |
| | Post-crisis | -0.025 | 0.070 | 0.705 | 0.057 | 13.656 | 0.239 | 0.019 | 0.063 | 2,201 |
| Italy | Pre-crisis 1 | 0.004 | 0.042 | 0.577 | 0.000 | 14.349 | 0.059 | 0.025 | 0.079 | 404 |
| | Pre-crisis 2 | -0.037 | 0.050 | 0.376 | 0.051 | 7.453 | 0.190 | 0.034 | 0.072 | 1,773 |
| | Crisis | -0.039 | 0.013 | 0.336 | 0.045 | 5.746 | 0.241 | 0.026 | 0.082 | 733 |
| | Post-crisis | -0.041 | 0.016 | 0.330 | 0.050 | 5.608 | 0.215 | 0.049 | 0.105 | 1,492 |
| Luxembourg | Pre-crisis 1 | 0.000 | 0.063 | 0.296 | 0.000 | 9.067 | 0.103 | n/a | 0.154 | 39 |
| | Pre-crisis 2 | -0.047 | 0.059 | 0.582 | 0.048 | 6.503 | 0.200 | n/a | 0.108 | 195 |
| | Crisis | -0.052 | 0.008 | 0.594 | 0.101 | 6.251 | 0.137 | n/a | 0.088 | 102 |
| | Post-crisis | -0.045 | 0.026 | 0.531 | 0.065 | 6.534 | 0.169 | n/a | 0.148 | 260 |

| Country | Period | *Median* Accruals | *Median* Δ Sales | *Median* PPE | *Median* CFO | *Median* Ln ($TA_{t-1}$) | *Mean* dNegCFO | *Mean* dDebt | *Mean* dEquity | *Count* # obs |
|---|---|---|---|---|---|---|---|---|---|---|
| Mexico | Pre-crisis 1 | 0.013 | 0.106 | 1.068 | 0.000 | 8.818 | 0.030 | 0.200 | 0.215 | 270 |
| | Pre-crisis 2 | -0.042 | 0.095 | 0.930 | 0.079 | 8.976 | 0.121 | 0.088 | 0.106 | 818 |
| | Crisis | -0.055 | 0.066 | 0.885 | 0.094 | 9.423 | 0.141 | 0.120 | 0.148 | 284 |
| | Post-crisis | -0.049 | 0.051 | 0.781 | 0.094 | 9.799 | 0.094 | 0.139 | 0.187 | 584 |
| Netherlands | Pre-crisis 1 | 0.015 | 0.105 | 0.815 | 0.000 | 6.318 | 0.052 | 0.040 | 0.075 | 718 |
| | Pre-crisis 2 | -0.047 | 0.080 | 0.500 | 0.088 | 5.948 | 0.173 | 0.037 | 0.108 | 1,441 |
| | Crisis | -0.052 | 0.033 | 0.399 | 0.084 | 6.224 | 0.125 | 0.055 | 0.159 | 415 |
| | Post-crisis | -0.050 | 0.029 | 0.413 | 0.075 | 6.416 | 0.170 | 0.048 | 0.141 | 752 |
| Peru | Pre-crisis 1 | -0.030 | 0.184 | 1.396 | 0.169 | 7.311 | 0.222 | 0.222 | 0.333 | 9 |
| | Pre-crisis 2 | -0.042 | 0.048 | 1.090 | 0.080 | 5.600 | 0.139 | 0.075 | 0.077 | 547 |
| | Crisis | -0.038 | 0.040 | 1.041 | 0.117 | 5.995 | 0.098 | 0.069 | 0.102 | 245 |
| | Post-crisis | -0.028 | 0.043 | 0.984 | 0.079 | 6.333 | 0.147 | 0.046 | 0.076 | 498 |
| Philippines | Pre-crisis 1 | -0.016 | 0.054 | 0.761 | 0.024 | 8.610 | 0.165 | 0.044 | 0.077 | 91 |
| | Pre-crisis 2 | -0.047 | 0.008 | 0.658 | 0.036 | 8.045 | 0.299 | 0.022 | 0.042 | 1,172 |
| | Crisis | -0.025 | 0.009 | 0.587 | 0.038 | 7.964 | 0.300 | 0.044 | 0.108 | 473 |
| | Post-crisis | -0.024 | 0.021 | 0.553 | 0.057 | 8.343 | 0.270 | 0.048 | 0.138 | 1,030 |
| Portugal | Pre-crisis 1 | 0.004 | 0.070 | 0.909 | 0.000 | 10.249 | 0.074 | n/a | 0.107 | 122 |
| | Pre-crisis 2 | -0.048 | 0.037 | 0.787 | 0.064 | 7.758 | 0.145 | n/a | 0.095 | 420 |
| | Crisis | -0.057 | 0.015 | 0.835 | 0.071 | 6.023 | 0.193 | n/a | 0.110 | 145 |
| | Post-crisis | -0.051 | 0.002 | 0.538 | 0.059 | 6.263 | 0.183 | n/a | 0.114 | 273 |
| Russia | Pre-crisis 1 | -0.006 | 0.009 | 1.280 | 0.007 | 15.412 | 0.000 | 0.100 | 0.100 | 10 |
| | Pre-crisis 2 | 0.003 | 0.173 | 0.837 | 0.074 | 8.750 | 0.164 | 0.025 | 0.043 | 682 |
| | Crisis | -0.031 | 0.118 | 0.755 | 0.073 | 9.292 | 0.187 | 0.051 | 0.086 | 641 |
| | Post-crisis | -0.042 | 0.065 | 0.662 | 0.076 | 9.533 | 0.227 | 0.073 | 0.114 | 1,407 |
| Turkey | Pre-crisis 1 | 0.164 | 0.938 | 1.062 | 0.000 | 16.070 | 0.052 | n/a | 0.017 | 58 |
| | Pre-crisis 2 | 0.000 | 0.219 | 0.958 | 0.006 | 16.113 | 0.177 | n/a | 0.020 | 792 |
| | Crisis | -0.019 | 0.034 | 0.442 | 0.004 | 5.368 | 0.158 | n/a | 0.045 | 627 |
| | Post-crisis | -0.010 | 0.082 | 0.591 | 0.031 | 5.415 | 0.299 | n/a | 0.057 | 1,781 |
| Vietnam | Pre-crisis 1 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | Pre-crisis 2 | 0.072 | 0.274 | 0.539 | 0.043 | 11.985 | 0.230 | n/a | 0.000 | 87 |
| | Crisis | 0.035 | 0.192 | 0.460 | 0.055 | 12.789 | 0.276 | n/a | 0.077 | 736 |
| | Post-crisis | 0.009 | 0.096 | 0.463 | 0.052 | 13.270 | 0.313 | n/a | 0.089 | 2,278 |

| | | *Median* | *Median* | *Median* | *Median* | *Median* | *Mean* | *Mean* | *Mean* | *Count* |
|---|---|---|---|---|---|---|---|---|---|---|
| Country | Period | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | dDebt | dEquity | # obs |
| *German legal origin countries* | | | | | | | | | | |
| Austria | Pre-crisis 1 | 0.012 | 0.040 | 0.805 | 0.000 | 8.359 | 0.010 | 0.032 | 0.061 | 313 |
| | Pre-crisis 2 | -0.040 | 0.056 | 0.798 | 0.059 | 6.342 | 0.142 | 0.020 | 0.065 | 713 |
| | Crisis | -0.050 | 0.016 | 0.652 | 0.080 | 5.642 | 0.148 | 0.051 | 0.088 | 216 |
| | Post-crisis | -0.042 | 0.022 | 0.726 | 0.071 | 5.729 | 0.136 | 0.077 | 0.130 | 390 |
| Switzerland | Pre-crisis 1 | 0.002 | 0.036 | 0.604 | 0.000 | 6.632 | 0.030 | 0.056 | 0.073 | 771 |
| | Pre-crisis 2 | -0.042 | 0.036 | 0.624 | 0.084 | 6.020 | 0.120 | 0.043 | 0.072 | 1,734 |
| | Crisis | -0.048 | 0.015 | 0.478 | 0.092 | 5.966 | 0.130 | 0.032 | 0.084 | 585 |
| | Post-crisis | -0.040 | 0.011 | 0.519 | 0.079 | 6.026 | 0.131 | 0.073 | 0.136 | 1,105 |
| China | Pre-crisis 1 | 0.097 | 0.087 | 0.525 | 0.000 | 5.942 | 0.002 | 0.000 | 0.011 | 2,624 |
| | Pre-crisis 2 | -0.019 | 0.068 | 0.568 | 0.052 | 6.948 | 0.184 | 0.001 | 0.009 | 11,170 |
| | Crisis | -0.019 | 0.089 | 0.489 | 0.071 | 7.129 | 0.156 | 0.016 | 0.052 | 5,860 |
| | Post-crisis | -0.003 | 0.071 | 0.419 | 0.058 | 7.434 | 0.212 | 0.051 | 0.123 | 17,617 |
| Germany | Pre-crisis 1 | 0.016 | 0.059 | 0.881 | 0.000 | 6.461 | 0.027 | 0.026 | 0.072 | 2,099 |
| | Pre-crisis 2 | -0.043 | 0.053 | 0.506 | 0.043 | 4.849 | 0.252 | 0.023 | 0.049 | 5,729 |
| | Crisis | -0.047 | 0.030 | 0.340 | 0.060 | 4.419 | 0.220 | 0.017 | 0.069 | 1,972 |
| | Post-crisis | -0.041 | 0.042 | 0.375 | 0.063 | 4.634 | 0.194 | 0.028 | 0.131 | 3,516 |
| Japan | Pre-crisis 1 | 0.015 | 0.033 | 0.583 | 0.000 | 10.973 | 0.001 | 0.120 | 0.132 | 14,746 |
| | Pre-crisis 2 | -0.030 | 0.020 | 0.620 | 0.044 | 10.535 | 0.134 | 0.048 | 0.102 | 23,815 |
| | Crisis | -0.043 | -0.019 | 0.595 | 0.055 | 10.428 | 0.161 | 0.037 | 0.071 | 8,708 |
| | Post-crisis | -0.033 | 0.035 | 0.640 | 0.061 | 10.445 | 0.118 | 0.044 | 0.078 | 16,692 |
| South Korea | Pre-crisis 1 | -0.009 | 0.112 | 0.680 | 0.000 | 12.870 | 0.306 | 0.517 | 0.509 | 576 |
| | Pre-crisis 2 | -0.042 | 0.055 | 0.636 | 0.059 | 12.673 | 0.205 | 0.188 | 0.235 | 3,046 |
| | Crisis | -0.037 | 0.080 | 0.627 | 0.044 | 12.387 | 0.304 | 0.133 | 0.239 | 1,830 |
| | Post-crisis | -0.031 | 0.032 | 0.485 | 0.046 | 12.228 | 0.256 | 0.095 | 0.191 | 6,110 |
| Poland | Pre-crisis 1 | 0.002 | 0.343 | 0.000 | 0.090 | 5.597 | 0.095 | n/a | 0.095 | 21 |
| | Pre-crisis 2 | -0.022 | 0.128 | 0.217 | 0.054 | 4.656 | 0.201 | n/a | 0.014 | 1,371 |
| | Crisis | -0.028 | 0.130 | 0.454 | 0.060 | 4.561 | 0.278 | n/a | 0.047 | 1,121 |
| | Post-crisis | -0.033 | 0.069 | 0.354 | 0.049 | 3.988 | 0.282 | n/a | 0.049 | 3,636 |
| Taiwan | Pre-crisis 1 | 0.008 | 0.118 | 0.673 | 0.043 | 9.438 | 0.203 | 0.031 | 0.094 | 64 |
| | Pre-crisis 2 | -0.027 | 0.088 | 0.500 | 0.067 | 8.087 | 0.212 | 0.026 | 0.066 | 5,636 |
| | Crisis | -0.050 | 0.000 | 0.487 | 0.076 | 8.030 | 0.190 | 0.008 | 0.061 | 3,913 |
| | Post-crisis | -0.032 | 0.017 | 0.462 | 0.059 | 7.894 | 0.252 | 0.006 | 0.078 | 10,004 |

| | | *Median* | *Median* | *Median* | *Median* | *Median* | *Mean* | *Mean* | *Mean* | *Count* |
|---|---|---|---|---|---|---|---|---|---|---|
| Country | Period | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | dDebt | dEquity | # obs |
| *Scandinavian legal origin countries* | | | | | | | | | | |
| Denmark | Pre-crisis 1 | 0.018 | 0.073 | 0.661 | 0.000 | 7.111 | 0.048 | n/a | 0.054 | 540 |
| | Pre-crisis 2 | -0.043 | 0.057 | 0.583 | 0.076 | 6.626 | 0.211 | n/a | 0.060 | 1,079 |
| | Crisis | -0.058 | 0.031 | 0.410 | 0.061 | 6.371 | 0.314 | n/a | 0.098 | 369 |
| | Post-crisis | -0.052 | 0.034 | 0.451 | 0.067 | 6.336 | 0.249 | n/a | 0.105 | 715 |
| Finland | Pre-crisis 1 | 0.000 | 0.064 | 0.381 | 0.000 | 8.534 | 0.020 | 0.126 | 0.175 | 348 |
| | Pre-crisis 2 | -0.047 | 0.086 | 0.519 | 0.088 | 5.408 | 0.127 | 0.032 | 0.071 | 1,031 |
| | Crisis | -0.047 | 0.016 | 0.428 | 0.084 | 5.134 | 0.171 | 0.023 | 0.100 | 350 |
| | Post-crisis | -0.047 | 0.034 | 0.400 | 0.070 | 5.078 | 0.173 | 0.064 | 0.137 | 738 |
| Norway | Pre-crisis 1 | 0.006 | 0.067 | 0.857 | 0.000 | 7.581 | 0.070 | 0.054 | 0.115 | 427 |
| | Pre-crisis 2 | -0.045 | 0.064 | 0.437 | 0.057 | 6.500 | 0.297 | 0.016 | 0.073 | 1,335 |
| | Crisis | -0.056 | 0.049 | 0.352 | 0.041 | 6.561 | 0.328 | 0.009 | 0.148 | 576 |
| | Post-crisis | -0.053 | 0.017 | 0.371 | 0.050 | 6.769 | 0.293 | 0.027 | 0.196 | 1,052 |
| Sweden | Pre-crisis 1 | 0.011 | 0.060 | 0.655 | 0.000 | 8.774 | 0.045 | 0.058 | 0.106 | 605 |
| | Pre-crisis 2 | -0.046 | 0.092 | 0.322 | 0.050 | 5.857 | 0.344 | 0.015 | 0.079 | 2,868 |
| | Crisis | -0.043 | 0.057 | 0.159 | 0.039 | 5.183 | 0.380 | 0.009 | 0.085 | 1,357 |
| | Post-crisis | -0.048 | 0.038 | 0.121 | 0.022 | 4.923 | 0.392 | 0.027 | 0.203 | 3,118 |

*Table 4.1C: Descriptive statistics per country of firms raising financing in year t0*

| | | *Median* | *Median* | *Median* | *Median* | *Median* | *Mean* | *Count* |
|---|---|---|---|---|---|---|---|---|
| Country | Issue type | Accruals | Δ Sales | PPE | CFO | Ln ($TA_{t-1}$) | dNegCFO | # obs |
| *English legal origin countries* | | | | | | | | |
| Australia | Equity | -0.068 | 0.000 | 0.540 | -0.102 | 2.514 | 0.749 | 7,353 |
| | Debt | -0.042 | 0.048 | 0.627 | 0.085 | 8.200 | 0.064 | 251 |
| United Kingdom | Equity | -0.063 | 0.049 | 0.308 | 0.012 | 3.603 | 0.466 | 4,374 |
| | Debt | -0.064 | 0.052 | 0.691 | 0.114 | 7.819 | 0.031 | 768 |
| Hong Kong | Equity | -0.024 | 0.038 | 0.503 | 0.026 | 8.259 | 0.329 | 298 |
| | Debt | -0.006 | 0.040 | 0.672 | 0.038 | 11.146 | 0.082 | 49 |
| India | Equity | -0.015 | 0.108 | 0.648 | 0.045 | 8.653 | 0.307 | 1,615 |
| | Debt | -0.028 | 0.091 | 0.733 | 0.069 | 10.375 | 0.229 | 401 |
| Ireland | Equity | -0.048 | 0.008 | 0.454 | 0.018 | 4.458 | 0.408 | 206 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Israel | Equity | -0.054 | 0.034 | 0.234 | -0.043 | 4.194 | 0.543 | 173 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Sri Lanka | Equity | 0.029 | 0.108 | 0.818 | 0.017 | 7.728 | 0.464 | 56 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Malaysia | Equity | -0.009 | 0.048 | 0.598 | 0.021 | 5.559 | 0.362 | 1,021 |
| | Debt | -0.009 | 0.032 | 0.624 | 0.047 | 7.713 | 0.194 | 217 |
| New Zealand | Equity | -0.044 | 0.028 | 0.406 | 0.030 | 4.127 | 0.442 | 233 |
| | Debt | -0.037 | 0.013 | 0.901 | 0.074 | 8.157 | 0.000 | 48 |
| Singapore | Equity | -0.017 | 0.052 | 0.479 | 0.027 | 4.934 | 0.383 | 1,132 |
| | Debt | -0.005 | 0.041 | 0.576 | 0.043 | 7.235 | 0.235 | 217 |
| Thailand | Equity | -0.035 | 0.052 | 0.790 | 0.060 | 8.890 | 0.294 | 669 |
| | Debt | -0.044 | 0.053 | 0.852 | 0.091 | 10.490 | 0.117 | 282 |
| United States | Equity | -0.049 | 0.102 | 0.405 | 0.056 | 5.346 | 0.346 | 8,326 |
| | Debt | -0.050 | 0.055 | 0.678 | 0.091 | 7.873 | 0.071 | 7,776 |
| South Africa | Equity | -0.056 | 0.091 | 0.510 | 0.074 | 8.454 | 0.263 | 171 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| *French legal origin countries* | | | | | | | | |
| Argentina | Equity | -0.072 | 0.062 | 0.935 | 0.100 | 7.243 | 0.122 | 90 |
| | Debt | -0.072 | 0.069 | 0.942 | 0.110 | 7.796 | 0.045 | 66 |
| Belgium | Equity | -0.038 | 0.047 | 0.673 | 0.067 | 7.367 | 0.199 | 186 |
| | Debt | -0.050 | 0.025 | 0.884 | 0.096 | 9.037 | 0.012 | 81 |
| Brazil | Equity | -0.038 | 0.080 | 0.605 | 0.062 | 8.243 | 0.166 | 667 |
| | Debt | -0.043 | 0.080 | 0.677 | 0.067 | 8.360 | 0.108 | 473 |
| Chile | Equity | -0.029 | 0.062 | 0.878 | 0.062 | 12.339 | 0.132 | 265 |
| | Debt | -0.041 | 0.057 | 0.940 | 0.078 | 13.234 | 0.060 | 134 |
| Colombia | Equity | -0.038 | 0.045 | 0.737 | 0.059 | 15.250 | 0.188 | 48 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Egypt | Equity | 0.011 | 0.035 | 0.447 | 0.005 | 6.457 | 0.184 | 76 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Spain | Equity | -0.021 | 0.032 | 0.740 | 0.016 | 8.810 | 0.098 | 327 |
| | Debt | 0.000 | 0.019 | 0.991 | 0.006 | 10.051 | 0.013 | 78 |
| France | Equity | -0.040 | 0.041 | 0.333 | 0.053 | 7.821 | 0.213 | 1,298 |
| | Debt | -0.041 | 0.025 | 0.505 | 0.074 | 10.123 | 0.021 | 578 |
| Greece | Equity | -0.043 | 0.036 | 0.687 | 0.025 | 6.323 | 0.275 | 80 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Indonesia | Equity | -0.034 | 0.130 | 0.876 | 0.088 | 14.771 | 0.161 | 317 |
| | Debt | -0.046 | 0.114 | 0.792 | 0.096 | 14.922 | 0.097 | 124 |
| Italy | Equity | -0.043 | 0.040 | 0.454 | 0.060 | 8.393 | 0.205 | 376 |
| | Debt | -0.044 | 0.029 | 0.641 | 0.074 | 9.606 | 0.068 | 162 |
| Luxembourg | Equity | -0.051 | 0.031 | 0.672 | 0.062 | 7.243 | 0.229 | 70 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

| Country | Issue type | *Median* Accruals | *Median* Δ Sales | *Median* PPE | *Median* CFO | *Median* Ln ($TA_{t-1}$) | *Mean* dNegCFO | *Count* # obs |
|---|---|---|---|---|---|---|---|---|
| Mexico | Equity | -0.048 | 0.071 | 0.827 | 0.090 | 10.022 | 0.095 | 296 |
| | Debt | -0.049 | 0.072 | 0.837 | 0.090 | 10.153 | 0.058 | 241 |
| Netherlands | Equity | -0.046 | 0.076 | 0.493 | 0.090 | 7.608 | 0.166 | 379 |
| | Debt | -0.052 | 0.048 | 0.688 | 0.110 | 9.217 | 0.035 | 142 |
| Peru | Equity | -0.043 | 0.038 | 1.063 | 0.109 | 7.438 | 0.093 | 108 |
| | Debt | -0.043 | 0.032 | 1.139 | 0.114 | 7.646 | 0.048 | 83 |
| Philippines | Equity | -0.030 | 0.051 | 0.695 | 0.066 | 9.582 | 0.250 | 248 |
| | Debt | -0.053 | 0.051 | 0.687 | 0.098 | 11.756 | 0.060 | 100 |
| Portugal | Equity | -0.059 | 0.029 | 0.875 | 0.080 | 9.012 | 0.120 | 100 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Russia | Equity | -0.051 | 0.076 | 0.938 | 0.099 | 10.447 | 0.146 | 246 |
| | Debt | -0.054 | 0.049 | 0.964 | 0.112 | 11.090 | 0.052 | 154 |
| Turkey | Equity | -0.027 | 0.072 | 0.558 | 0.000 | 6.194 | 0.333 | 147 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Vietnam | Equity | 0.044 | 0.162 | 0.488 | 0.018 | 13.530 | 0.396 | 260 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| *German legal origin countries* | | | | | | | | |
| Austria | Equity | -0.048 | 0.063 | 0.890 | 0.072 | 7.952 | 0.130 | 131 |
| | Debt | -0.054 | 0.044 | 0.918 | 0.082 | 8.922 | 0.016 | 62 |
| Switzerland | Equity | -0.045 | 0.030 | 0.586 | 0.075 | 7.526 | 0.146 | 378 |
| | Debt | -0.046 | 0.024 | 0.692 | 0.086 | 8.040 | 0.009 | 214 |
| China | Equity | -0.010 | 0.077 | 0.557 | 0.051 | 8.451 | 0.219 | 2,603 |
| | Debt | -0.024 | 0.036 | 0.573 | 0.052 | 9.403 | 0.184 | 1,004 |
| Germany | Equity | -0.040 | 0.078 | 0.493 | 0.045 | 6.390 | 0.255 | 1,018 |
| | Debt | -0.047 | 0.040 | 0.727 | 0.078 | 9.609 | 0.083 | 314 |
| Japan | Equity | -0.015 | 0.037 | 0.678 | 0.023 | 11.899 | 0.104 | 5,393 |
| | Debt | -0.004 | 0.026 | 0.781 | 0.000 | 13.017 | 0.031 | 3,276 |
| South Korea | Equity | -0.041 | 0.052 | 0.573 | 0.033 | 13.771 | 0.331 | 2,600 |
| | Debt | -0.036 | 0.063 | 0.652 | 0.048 | 14.712 | 0.222 | 1,693 |
| Poland | Equity | -0.015 | 0.075 | 0.392 | 0.027 | 4.883 | 0.411 | 253 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Taiwan | Equity | -0.039 | 0.049 | 0.593 | 0.049 | 8.315 | 0.316 | 1,398 |
| | Debt | -0.043 | 0.065 | 0.808 | 0.085 | 11.509 | 0.091 | 241 |
| *Scandinavian legal origin countries* | | | | | | | | |
| Denmark | Equity | -0.054 | 0.063 | 0.434 | 0.020 | 7.155 | 0.364 | 198 |
| | Debt | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Finland | Equity | -0.039 | 0.054 | 0.558 | 0.072 | 7.627 | 0.133 | 270 |
| | Debt | -0.031 | 0.048 | 0.786 | 0.071 | 8.788 | 0.030 | 132 |
| Norway | Equity | -0.066 | 0.048 | 0.503 | 0.022 | 6.906 | 0.395 | 438 |
| | Debt | -0.061 | 0.044 | 1.012 | 0.085 | 10.186 | 0.104 | 77 |
| Sweden | Equity | -0.049 | 0.033 | 0.196 | -0.042 | 5.533 | 0.563 | 1,033 |
| | Debt | -0.036 | 0.057 | 0.581 | 0.083 | 10.515 | 0.064 | 172 |

observations in the country) to 11.8% for Vietnam[38]. The median ratios of gross property, plant and equipment to total assets for a majority of the countries range from 40% to 80%. A vast majority of the median cash flows scaled by total assets are in the 3.0% to 8.0% range. Between 15% and 25% of the total firm-year observations in most countries have negative cash flow, with Spain being the lowest (average of 8.3%) and Australia the highest (57.8%). The mean values of the variables *dDebt* and *dEequity* indicate the proportions of observations that raise funds. With regards to the 32 countries in the debt sample, South Korea has the most instances of debt issuers (14.7% of total firm-year entries) while South Africa has the least (0.5%). On average, debt issuers make up approximately 4% of the total observations in each country. Equity proves to be a much more prevalent form of additional financing, however, as about 9% of the observations have secondary offerings with the frequency of equity deals as high as 39.1% in Australia (compared to the lowest average of 2.6% in Greece).

Next, Table 4.1B shows the median values for the financial variables and mean values for the dummy variables during the different sub-periods. It can be observed that accruals become more negative in most countries during the crisis years, which might indicate an instance of conservative accounting (for instance, goodwill impairment might have been triggered and taken by companies on the back of worsening business developments). Sales growth, as expected, appears to slow down during the crisis years and beyond in a vast majority of countries (although recovery is also observed in some countries in the post-crisis period). In terms of cash flows, the effects of the crisis on companies in the different countries are somewhat mixed. A number of countries in fact show *higher* median cash flow

[38]Accounting figures in the data set are in coded in local currencies, so growth rates are not affected by exchange rate movements.

ratios during the crisis years despite of the increasing asset base; this suggests that the average (or median) company seems to have been able to withstand the crisis reasonably well and that the most affected firms might have been the weaker ones. Likewise, the proportion of firms with negative cash flows increases during the crisis period for most countries but decreases for some others[39]. It is reassuring, nevertheless, to see the mean of *dNegCFO* increase significantly for the countries that are known to have been severely affected by the financial crisis (e.g, Greece, Ireland and Spain). The deal dummies could provide insights into the fundraising activities of the companies in the sample. The higher (lower) average values for *dEquity* (*dDebt)* during the crisis period imply that in most countries more firms tend to turn to the stock markets during the financial crisis and beyond for additional funding, which is expected given the restricted access to the credit markets. Then as the crisis eases off, the number of issuers – both debt and equity – increases in most countries, most likely due to the low interest rates following the quantitative easing policies enacted by central banks around the world as well as the investors' hunt for yields.

The financials of debt issuers and equity issuers for each country in the sample are shown in Table 4.1C. In general, there are no clear differences in terms of accruals. With regards to sales growth, however, it can be seen that the firms that raise equity tend to exhibit higher increase in revenue from the previous year. Companies in the debt-issuing subsamples have greater tangible fixed assets (as measured by the ratio of property, plant and equipment to total assets) than those in the equity subsamples. Furthermore, equity issuers in most countries (except for

[39] The fact that there is no clear pattern here in terms of cash flow characteristics suggests that the macro, country level factors probably have less impact on firms' cash flows than the individual companies' own resilience.

Spain, Japan and Finland) have lower median operating cash flows compared to debt counterparts, while there are significantly more firms with negative cash flows in the equity issuing subsamples. These observations are as expected overall given the characteristics of the funding instruments. Indeed, equity offerings are common means of financing for growth companies that may not have enough cash flows to service debt or would need cash for further investments. More mature companies with collateral value and stable cash flows would be typically utilize more debt in their capital structure in order to lower funding costs.

Table 4.2 summarizes country level variables of the 45 nations in the sample. As mentioned earlier, the data are sourced from La Porta et al. (1997, 1998, 2006) and one general observation is that the rights of shareholder and creditor rights are most favorable in common law countries while the French civil law provides the least protection. This can be seen in the average scores of the 'investor rights and protection' variables of the different subsamples. In terms of the development of the equity and debt markets, similar conclusions hold, i.e. the size of the capital markets relative to GDP as well as the number of listed firms relative to population are generally higher for common law countries. If one were to look at these summary statistics through a different lens, it should be no coincidence that developing countries, primarily in Asia and South America, generally score lower developed ones on institutional and legal aspects. They also tend to show higher GDP growth although the depth and breadth of their capital markets are much lower than developed countries.

### 4.3.2 Firm level regression results

The results of the Ball and Shivakumar asymmetrical timeliness model in equation (1) are shown in Table 4.3. As previously stated, the regression is performed

**Table 4.2: Descriptive statistics country variables**

| Country | Code | | | Investor rights and protection | | | | | | Market development | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Legal origin | Legal code | Credi-tor | Rule Law | Risk Exp | Corr-uption | PriEn-force | PubEn-force | GDP CapGr | Ln(Firms _Pop) | MktCap _GDP | Bond _GDP |
| Australia | AUS | English | Common | 3.000 | 10.00 | 9.270 | 8.300 | 0.705 | 0.896 | 2.079 | 4.226 | 0.973 | 0.615 |
| Hong Kong | HKG | English | Common | 4.000 | 8.217 | 8.290 | 7.700 | 0.788 | 0.875 | 4.062 | 4.862 | 3.274 | 0.272 |
| India | IND | English | Common | 2.000 | 4.167 | 7.750 | 2.800 | 0.788 | 0.719 | 3.167 | 1.724 | 0.315 | 0.015 |
| Ireland | IRL | English | Common | 1.000 | 7.800 | 9.670 | 7.200 | 0.608 | 0.271 | 4.587 | 2.884 | 0.625 | 0.336 |
| Israel | ISR | English | Common | 3.000 | 4.817 | 8.250 | 6.600 | 0.663 | 0.750 | 2.170 | 4.583 | 0.450 | 0.372 |
| Malaysia | MYS | English | Common | 3.000 | 6.783 | 7.950 | 4.800 | 0.788 | 0.844 | 3.725 | 3.558 | 1.324 | 0.678 |
| New Zealand | NZL | English | Common | 4.000 | 10.00 | 9.690 | 9.400 | 0.553 | 0.396 | 1.291 | 3.543 | 0.370 | 0.258 |
| Singapore | SGP | English | Common | 3.000 | 8.567 | 9.300 | 9.100 | 0.830 | 0.875 | 4.673 | 4.606 | 1.482 | 0.508 |
| South Africa | ZAF | English | Common | 3.000 | 4.417 | 6.880 | 5.000 | 0.747 | 0.292 | -0.021 | 2.500 | 1.442 | 0.463 |
| Sri Lanka | LKA | English | Common | 2.000 | 1.900 | 6.050 | 0.000 | 0.595 | 0.333 | 3.273 | 2.530 | 0.091 | . |
| Thailand | THA | English | Common | 2.000 | 6.250 | 7.420 | 3.200 | 0.625 | 0.667 | 4.657 | 1.886 | 0.363 | 0.252 |
| United | GBR | English | Common | 4.000 | 8.567 | 9.710 | 8.700 | 0.747 | 0.667 | 2.112 | 3.565 | 1.376 | 0.462 |
| United States | USA | English | Common | 1.000 | 10.00 | 9.980 | 7.800 | 1.000 | 0.875 | 1.927 | 3.130 | 1.308 | 1.413 |
| Average English legal origin | | | | 2.692 | 7.037 | 8.478 | 6.200 | 0.726 | 0.651 | 2.900 | 3.354 | 1.030 | 0.470 |
| Argentina | ARG | French | Civil | 1.000 | 5.350 | 5.910 | 3.500 | 0.360 | 0.500 | -0.284 | 1.097 | 0.174 | 0.198 |
| Belgium | BEL | French | Civil | 2.000 | 10.00 | 9.630 | 6.100 | 0.428 | 0.188 | 1.945 | 2.740 | 0.637 | 1.295 |
| Brazil | BRA | French | Civil | 1.000 | 6.317 | 7.620 | 3.900 | 0.290 | 0.521 | 0.870 | 0.886 | 0.306 | 0.549 |
| Chile | CHL | French | Civil | 2.000 | 7.017 | 7.500 | 7.400 | 0.457 | 0.542 | 3.779 | 2.804 | 0.784 | . |
| Colombia | COL | French | Civil | 0.000 | 2.083 | 6.950 | 3.200 | 0.263 | 0.521 | 1.244 | 1.069 | 0.115 | 0.190 |
| Egypt | EGY | French | Civil | 2.000 | 4.167 | 6.300 | 3.100 | 0.360 | 0.333 | 2.740 | 2.745 | 0.290 | . |
| France | FRA | French | Civil | 0.000 | 8.983 | 9.650 | 6.700 | 0.485 | 0.802 | 1.728 | 2.619 | 0.840 | 0.832 |
| Greece | GRC | French | Civil | 1.000 | 6.183 | 7.120 | 4.900 | 0.387 | 0.354 | 1.451 | 3.391 | 0.728 | 0.661 |
| Indonesia | IDN | French | Civil | 2.000 | 3.983 | 7.160 | 1.700 | 0.580 | 0.563 | 3.853 | 0.390 | 0.212 | 0.270 |
| Italy | ITA | French | Civil | 2.000 | 8.333 | 9.350 | 4.600 | 0.443 | 0.375 | 1.990 | 1.591 | 0.506 | 1.160 |
| Luxembourg | LUX | French | Civil | . | . | . | . | . | . | . | 4.688 | 1.262 | 0.028 |
| Mexico | MEX | French | Civil | 0.000 | 5.350 | 7.290 | 3.300 | 0.347 | 0.250 | 1.335 | 0.550 | 0.179 | 0.231 |
| Netherlands | NLD | French | Civil | 3.000 | 10.00 | 9.980 | 8.900 | 0.750 | 0.375 | 1.726 | 2.515 | 1.179 | 0.917 |
| Peru | PER | French | Civil | 0.000 | 2.500 | 5.540 | 4.400 | 0.497 | 0.750 | -0.037 | 2.103 | 0.203 | 0.136 |
| Philippines | PHL | French | Civil | 1.000 | 2.733 | 5.220 | 2.800 | 0.917 | 0.813 | 0.443 | 1.091 | 0.329 | 0.307 |
| Portugal | PRT | French | Civil | 1.000 | 8.683 | 8.900 | 6.400 | 0.538 | 0.500 | 2.787 | 2.177 | 0.423 | 0.524 |
| Russia | RUS | French | Civil | 2.000 | . | . | . | . | . | -0.063 | 0.414 | 0.256 | 0.025 |
| Spain | ESP | French | Civil | 2.000 | 7.800 | 9.520 | 7.000 | 0.580 | 0.375 | 2.068 | 3.819 | 1.085 | 0.568 |
| Turkey | TUR | French | Civil | 2.000 | 5.183 | 7.000 | 3.800 | 0.360 | 0.563 | 1.429 | 1.466 | 0.215 | 0.267 |

| Country | Code | | | Investor rights and protection | | | | | | Market development | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Legal origin | Legal code | Credi-tor | Rule Law | Risk Exp | Corr-uption | PriEn-force | PubEn-force | GDP CapGr | Ln(Firms _Pop) | MktCap _GDP | Bond _GDP |
| Vietnam | VNM | French | Civil | 1.000 | . | . | . | . | . | 4.581 | . | . | . |
| Average French legal origin | | | | 1.316 | 6.157 | 7.685 | 4.806 | 0.473 | 0.490 | 1.768 | 2.008 | 0.512 | 0.480 |
| Austria | AUT | German | Civil | 3.000 | 10.00 | 9.690 | 7.700 | 0.180 | 0.188 | 1.945 | 2.489 | 0.154 | 0.719 |
| China | CHN | German | Civil | 2.000 | . | . | . | . | . | 8.156 | -0.104 | 0.341 | 0.199 |
| Germany | DEU | German | Civil | 3.000 | 9.233 | 9.900 | 7.600 | 0.208 | 0.250 | 1.698 | 2.300 | 0.523 | 0.859 |
| Japan | JPN | German | Civil | 2.000 | 8.983 | 9.670 | 6.400 | 0.705 | 0.000 | 2.247 | 3.068 | 0.658 | 1.667 |
| Poland | POL | German | Civil | 1.000 | . | . | . | . | . | 3.180 | 1.741 | 0.152 | 0.250 |
| South Korea | KOR | German | Civil | 3.000 | 5.350 | 8.310 | 4.000 | 0.705 | 0.292 | 5.763 | 3.384 | 0.420 | 0.770 |
| Switzerland | CHE | German | Civil | 1.000 | 10.00 | 9.980 | 8.600 | 0.553 | 0.208 | 0.980 | 3.582 | 2.255 | 0.432 |
| Taiwan | TWN | German | Civil | 2.000 | 8.517 | 9.120 | 5.500 | 0.705 | 0.438 | 5.691 | 3.250 | . | . |
| Average German legal origin | | | | 2.125 | 8.681 | 9.445 | 6.633 | 0.509 | 0.229 | 3.708 | 2.464 | 0.643 | 0.699 |
| Denmark | DNK | Scand | Civil | 3.000 | 10.00 | 9.670 | 9.800 | 0.680 | 0.271 | 1.618 | 3.665 | 0.539 | 1.677 |
| Finland | FIN | Scand | Civil | 1.000 | 10.00 | 9.670 | 10.00 | 0.580 | 0.354 | 2.424 | 3.354 | 1.657 | 0.499 |
| Norway | NOR | Scand | Civil | 2.000 | 10.00 | 9.880 | 9.100 | 0.512 | 0.396 | 2.489 | 3.694 | 0.363 | 0.382 |
| Sweden | SWE | Scand | Civil | 1.000 | 10.00 | 9.400 | 9.400 | 0.457 | 0.438 | 1.689 | 3.445 | 1.031 | 0.694 |
| Average Scandinavian legal origin | | | | 1.750 | 10.00 | 9.655 | 9.575 | 0.557 | 0.365 | 2.055 | 3.539 | 0.897 | 0.813 |

## Definitions of variables

| Variables | Description |
|---|---|
| Legal_origin | A dummy variable that identifies the legal origin of the Company law or Commercial Code of each country. The origins are English, French, German or Scandinavian. Source: La Porta et al (1999) and the CIA Factbook 2003. |
| Legal_code | Indicator whether the legal tradition of the country can be classified as civil or common law Source: La Porta et al. (1998) |
| Creditor | An index aggregating creditor rights, following La Porta et al. (1998). A score of one is assigned when each of the following rights of secured lenders are defined in laws and regulations: First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization. Second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e. there is no "automatic stay" or "asset freeze." Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers. Finally, if management does not retain administration of its property pending the resolution of the reorganization. The index ranges from 0 (weak creditor rights) to 4 (strong creditor rights) and is constructed as at January for every year from 1978 to 2003. |
| RuleLaw | Assessment of the law and order tradition in the country produced by the country risk rating agency International Country Risk (ICR). Average of the guide months of April and October of the monthly index between 1982 and 1995. Scale from zero to 10, with lower scores for less tradition for law and order (La Porta et al., 1998). |
| RiskExp | ICR's assessment of the risk of ''outright confiscation'' or ''forced nationalization.'' Average of the months of April and October of the monthly index guide between 1982 and 1995. Scale from zero to 10, with lower scores for higher risks (La Porta et al., 1998). |
| Corruption | Corruption Perception Index – Transparency International 2000. Source: La Porta, Lopez-de-Silanes, Shleifer (2008). |
| PriEnforce | The index of private enforcement equals the arithmetic mean of: (1) Disclosure Index; and (2) Burden of proof index. Source: La Porta, Lopez-de-Silanes, Shleifer (2006). |
| PubEnforce | The index of public enforcement equals the arithmetic mean of: (1) Supervisor characteristics index; (2) Investigative powers index; (3) Orders index; and (4) Criminal index. Source: La Porta, Lopez-de-Silanes, Shleifer (2006) |
| GDPCapGr | Average annual growth in gross domestic product per capita from 1979 - 2003. Source: World Development Indicators 2004. |
| Ln(Firms_Pop) | Logarithm of the average ratio of the number of domestic firms listed in a given country to its population (in millions) for the period 1996-2000. Source: La Porta, Lopez-de-Silanes, Shleifer (2006) |
| MktCap_GDP | Average of the ratio of stock market capitalization to gross domestic product for the period 1999-2003. Source: World Bank - Financial Structure Database. |
| Bond_GDP | Publicn and private domestic debt securities issued by financial institutions and corporations as a share of GDP. Source: World Bank - Financial Structure Database. |

**Table 4.3: Firm-level conservatism main effects**

| Country | Δ Sales | PP&E | dNegCFO | CFO | dNegCFO*CFO | # Obs | $R^2$ |
|---|---|---|---|---|---|---|---|
| *English legal origin countries* | | | | | | | |
| Australia | 0.0168* | 0.0118 | -0.0248*** | -0.318*** | 0.481*** | 24,336 | 5.0% |
| | (0.0102) | (0.0110) | (0.00882) | (0.0346) | (0.0367) | | |
| United Kingdom | 0.0495*** | -0.00181 | -0.0136* | -0.490*** | 0.562*** | 30,509 | 7.4% |
| | (0.00597) | (0.00507) | (0.00823) | (0.0424) | (0.0487) | | |
| Hong Kong | 0.108*** | -0.0149 | -0.0331*** | -0.629*** | -0.167 | 2,538 | 32.5% |
| | (0.0164) | (0.0121) | (0.0102) | (0.0583) | (0.114) | | |
| India | 0.0677*** | -0.0104*** | -0.00602*** | -0.557*** | -0.421*** | 45,348 | 55.3% |
| | (0.00462) | (0.00249) | (0.00229) | (0.0146) | (0.0353) | | |
| Ireland | 0.0552** | -0.0161 | -0.0290 | -0.612*** | 0.812*** | 1,355 | 18.6% |
| | (0.0243) | (0.0256) | (0.0260) | (0.103) | (0.129) | | |
| Israel | 0.0802*** | 0.00229 | 0.0315** | -0.319*** | 0.447*** | 3,972 | 6.3% |
| | (0.0163) | (0.00953) | (0.0137) | (0.0538) | (0.0825) | | |
| Sri Lanka | 0.0777*** | -0.0168** | 0.00683 | -0.382*** | -0.597*** | 2,069 | 51.8% |
| | (0.0117) | (0.00751) | (0.00593) | (0.0471) | (0.0744) | | |
| Malaysia | 0.121*** | -0.0212*** | -0.0205*** | -0.476*** | -0.288*** | 14,371 | 24.8% |
| | (0.00665) | (0.00534) | (0.00586) | (0.0382) | (0.0563) | | |
| New Zealand | 0.0224 | 0.0106 | -0.0254** | -0.534*** | 0.649*** | 2,139 | 9.9% |
| | (0.0220) | (0.00675) | (0.0104) | (0.0670) | (0.0695) | | |
| Singapore | 0.0969*** | -0.0302*** | -0.00141 | -0.487*** | 0.0597 | 9,213 | 26.4% |
| | (0.00759) | (0.00555) | (0.00779) | (0.0296) | (0.0957) | | |
| Thailand | 0.117*** | -0.0122*** | -0.00465 | -0.448*** | -0.369*** | 7,199 | 41.2% |
| | (0.00910) | (0.00402) | (0.00645) | (0.0245) | (0.0730) | | |
| United States | 0.0709*** | -0.0215*** | -0.00763* | -0.431*** | 0.532*** | 155,923 | 11.0% |
| | (0.00531) | (0.00290) | (0.00451) | (0.0162) | (0.0218) | | |
| South Africa | 0.0681*** | -0.0267*** | -0.0403*** | -0.575*** | -0.0525 | 4,498 | 29.0% |
| | (0.00892) | (0.00730) | (0.0129) | (0.0416) | (0.125) | | |
| *French legal origin countries* | | | | | | | |
| Argentina | 0.0893*** | -0.0236*** | -0.0284 | -0.638*** | -0.000739 | 1,102 | 30.9% |
| | (0.0290) | (0.00679) | (0.0287) | (0.0575) | (0.312) | | |
| Belgium | 0.0693*** | -0.00483 | 0.0159 | -0.515*** | 0.612*** | 2,083 | 24.8% |
| | (0.0133) | (0.00576) | (0.0139) | (0.0667) | (0.0755) | | |
| Brazil | 0.0955*** | -0.0145 | -0.0348** | -0.554*** | 0.448*** | 5,194 | 5.7% |
| | (0.0177) | (0.0128) | (0.0139) | (0.0606) | (0.0857) | | |

| Country | Δ Sales | PP&E | dNegCFO | CFO | dNegCFO*CFO | # Obs | $R^2$ |
|---|---|---|---|---|---|---|---|
| Chile | 0.105*** | -0.0224*** | 0.0133 | -0.534*** | 0.263* | 2,669 | 36.9% |
| | (0.0193) | (0.00813) | (0.0130) | (0.0859) | (0.157) | | |
| Colombia | 0.0927*** | -0.0129 | -0.0264 | -0.575*** | -0.647*** | 490 | 49.4% |
| | (0.0207) | (0.00891) | (0.0192) | (0.0687) | (0.213) | | |
| Egypt | 0.0773** | -0.0786*** | -0.00882 | -0.439*** | -0.200 | 1,054 | 43.3% |
| | (0.0304) | (0.0111) | (0.0107) | (0.0531) | (0.190) | | |
| Spain | 0.0983*** | 0.000976 | -0.0205** | -0.752*** | 0.274* | 2,627 | 41.1% |
| | (0.0147) | (0.00752) | (0.00990) | (0.0553) | (0.153) | | |
| France | 0.0954*** | -0.00732 | -0.00284 | -0.649*** | 0.663*** | 12,491 | 23.5% |
| | (0.00650) | (0.00485) | (0.00560) | (0.0355) | (0.0425) | | |
| Greece | 0.133*** | -0.0188*** | -0.0466*** | -0.803*** | -0.140 | 2,944 | 42.6% |
| | (0.0201) | (0.00663) | (0.0101) | (0.0709) | (0.109) | | |
| Indonesia | 0.0664*** | -0.0344*** | -0.00257 | -0.412*** | -0.526*** | 5,168 | 34.1% |
| | (0.00933) | (0.00504) | (0.00828) | (0.0411) | (0.132) | | |
| Italy | 0.0766*** | -0.00239 | -0.00776 | -0.649*** | 0.362*** | 4,313 | 31.2% |
| | (0.00946) | (0.00457) | (0.00757) | (0.0397) | (0.118) | | |
| Luxembourg | 0.126** | 0.00662 | 0.00437 | -0.496*** | 1.083** | 584 | 14.3% |
| | (0.0539) | (0.0151) | (0.0462) | (0.0981) | (0.507) | | |
| Mexico | 0.107*** | -0.0223** | -0.00830 | -0.650*** | 0.121 | 1,910 | 42.0% |
| | (0.0158) | (0.00935) | (0.0108) | (0.0521) | (0.127) | | |
| Netherlands | 0.0683*** | -0.00535 | -0.00346 | -0.523*** | 0.545*** | 3,247 | 18.9% |
| | (0.0131) | (0.00655) | (0.0134) | (0.0648) | (0.126) | | |
| Peru | 0.133*** | -0.0245*** | 0.0130** | -0.349*** | -0.601*** | 1,272 | 44.6% |
| | (0.0177) | (0.00706) | (0.00663) | (0.0428) | (0.112) | | |
| Philippines | 0.121*** | -0.0184* | 0.0212 | -0.422*** | 0.233* | 2,719 | 15.3% |
| | (0.0257) | (0.00942) | (0.0135) | (0.0524) | (0.131) | | |
| Portugal | 0.0966*** | -0.00970 | 0.00266 | -0.665*** | 0.209 | 936 | 39.9% |
| | (0.0161) | (0.00775) | (0.00923) | (0.0565) | (0.147) | | |
| Russia | 0.0611*** | -0.00380 | 0.0126 | -0.448*** | -0.424*** | 2,692 | 37.5% |
| | (0.00882) | (0.00740) | (0.0142) | (0.0518) | (0.107) | | |
| Turkey | 0.0801*** | -0.00963* | -0.0104 | -0.612*** | -0.160 | 3,187 | 36.8% |
| | (0.0108) | (0.00538) | (0.00939) | (0.0547) | (0.106) | | |
| Vietnam | 0.0611*** | -0.00991 | -0.00578 | -0.686*** | -0.346*** | 3,041 | 70.6% |
| | (0.00826) | (0.00869) | (0.00628) | (0.0557) | (0.0628) | | |

| Country | Δ Sales | PP&E | dNegCFO | CFO | dNegCFO*CFO | # Obs | $R^2$ |
|---|---|---|---|---|---|---|---|
| *German legal origin countries* | | | | | | | |
| Austria | 0.0580*** | -0.0113* | -0.0146 | -0.738*** | 0.654*** | 1,600 | 35.3% |
| | (0.00953) | (0.00673) | (0.0136) | (0.0330) | (0.207) | | |
| Switzerland | 0.0737*** | -0.00545* | 0.000894 | -0.517*** | 0.685*** | 4,104 | 22.7% |
| | (0.00876) | (0.00329) | (0.00803) | (0.0467) | (0.0541) | | |
| China | 0.0942*** | -0.0343*** | -0.0199*** | -0.577*** | -0.512*** | 36,474 | 44.4% |
| | (0.00852) | (0.00923) | (0.00739) | (0.0537) | (0.0574) | | |
| Germany | 0.0742*** | 0.000309 | -0.00706 | -0.570*** | 0.364*** | 13,023 | 19.7% |
| | (0.00570) | (0.00392) | (0.00805) | (0.0399) | (0.0415) | | |
| Japan | 0.0737*** | -0.0138*** | -0.00255 | -0.674*** | 0.372*** | 62,249 | 45.9% |
| | (0.00346) | (0.00135) | (0.00279) | (0.0229) | (0.0488) | | |
| South Korea | 0.0717*** | -0.00507* | -0.00999** | -0.606*** | 0.256*** | 11,296 | 26.8% |
| | (0.00603) | (0.00289) | (0.00391) | (0.0189) | (0.0545) | | |
| Poland | 0.0827*** | 0.00479 | 0.00464 | -0.493*** | -0.0618 | 6,034 | 31.7% |
| | (0.00678) | (0.0108) | (0.0174) | (0.0372) | (0.0864) | | |
| Taiwan | 0.118*** | -0.0342*** | -0.00512* | -0.446*** | -0.138 | 19,185 | 43.0% |
| | (0.00425) | (0.00258) | (0.00272) | (0.0176) | (0.0842) | | |
| *Scandinavian legal origin countries* | | | | | | | |
| Denmark | 0.0966*** | -0.00960 | 0.000781 | -0.439*** | 0.435*** | 2,642 | 18.3% |
| | (0.0159) | (0.00767) | (0.0122) | (0.0749) | (0.0877) | | |
| Finland | 0.0690*** | -0.0158*** | 0.00401 | -0.479*** | 0.617*** | 2,412 | 21.9% |
| | (0.0130) | (0.00449) | (0.0120) | (0.0432) | (0.0916) | | |
| Norway | 0.102*** | -0.00836 | 0.00973 | -0.545*** | 0.589*** | 3,319 | 15.4% |
| | (0.0123) | (0.0111) | (0.0115) | (0.0418) | (0.0640) | | |
| Sweden | 0.0412*** | 0.0459*** | 0.00613 | -0.322*** | 0.297*** | 7,769 | 4.5% |
| | (0.0113) | (0.00859) | (0.0128) | (0.0540) | (0.0607) | | |

Notes: OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ACC*, accruals (income before extraordinary items minus operating cash flow). As for the independent variables in the columns, *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow and *dNegCFO* is an indicator variable for negative CFO during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

individually for each of the 45 countries in the sample using the respective firm-year data. In general, the coefficients of the control variables turn out to be as expected. The coefficient of *ΔSALES* is positive and significant in all but one country, which is consistent with the typically positive relationship between sales and accruals due to change in working capital. PP&E is negatively correlated with accruals for firms in a majority of countries. This can be explained by the fact that higher fixed assets imply higher depreciation, which would in turn decrease accruals. The coefficients of cash flows in all countries are negative since accruals serve to smooth the earnings by mitigating the effects of noise in operating cash flows. The key variable of interest is *dNegCFO*CFO*, whose coefficient $\alpha_4$ in equation (1), if positive, would imply that bad news (negative cash flows) is recognized more timely in accruals than good news (positive cash flows). This is the main conservatism effect, which is present and significant in most countries, especially the more advanced economies. Conversely, a number of developing countries show the opposite results, i.e. *less* conservative reporting. It should be noted as well that the explanatory power is rather high in most models (average R-squared of almost 30%).

Table 4.4 presents the results of the regression models according to equation (2), where the focus is on the incremental effects that capital raisings have on firms' reporting behavior in the period starting two years preceding and ending after two years following such transactions (i.e. a five-year period) [40]. Conservatism in the years leading up to equity issues would be reflected in

[40] Only the coefficients and standard errors of the variable *dDeal*dNegCFO*CFO* – which represents additional conditional conservatism by companies that issue debt or equity during a certain time window relative to those that do not – are shown. The main conservatism effects are consistent with those reported in Table 3.

## Table 4.4: Firm-level relation between conservatism and deals

*Table 4.4A: Equity results*

| | | Coefficient and SE on dNegCFO X CFO X dEquity | | | | | Equity sub-sample | |
|---|---|---|---|---|---|---|---|---|
| | | t+2 | t+1 | t0 | t0 | t-2 | t0 | t0 |
| Country | | (1) | (2) | Obs | Obs | (5) | Obs | $R^2$ |
| *English legal origin countries* | | | | | | | | |
| Australia | AUS | 0.000647 | 0.102 | 0.0674 | 0.0155 | 0.0110 | 24,305 | 5.1% |
| | | (0.0829) | (0.0789) | (0.0828) | (0.0729) | (0.0863) | | |
| United Kingdom | GBR | -0.0635 | -0.0439 | -0.00518 | 0.00022 | -0.0403 | 30,211 | 7.8% |
| | | (0.0467) | (0.0500) | (0.0532) | (0.0398) | (0.0469) | | |
| Hong Kong | HKG | -0.522** | -0.141 | -0.0797 | 0.231 | -0.164 | 2,502 | 33.4% |
| | | (0.220) | (0.192) | (0.190) | (0.183) | (0.175) | | |
| India | IND | 0.00804 | 0.138 | 0.0101 | 0.240** | -0.0679 | 42,390 | 55.9% |
| | | (0.0433) | (0.0846) | (0.0784) | (0.108) | (0.0641) | | |
| Ireland | IRL | 0.256 | -0.0558 | -0.144 | -0.516* | -0.242 | 1,349 | 19.1% |
| | | (0.256) | (0.352) | (0.143) | (0.312) | (0.165) | | |
| Israel | ISR | -0.219 | -0.0962 | 0.109 | -0.300 | 0.0338 | 3,972 | 6.5% |
| | | (0.228) | (0.203) | (0.171) | (0.287) | (0.232) | | |
| Sri Lanka | LKA | -0.105 | -0.0138 | -0.142 | 0.0942 | -0.210 | 1,901 | 52.0% |
| | | (0.259) | (0.161) | (0.169) | (0.206) | (0.158) | | |
| Malaysia | MYS | - | 0.0280 | 0.0279 | -0.0720 | -0.157 | 14,214 | 24.7% |
| | | (0.0816) | (0.124) | (0.132) | (0.163) | (0.150) | | |
| New Zealand | NZL | - | - | 0.0937 | 0.0865 | -0.186 | 2,093 | 11.0% |
| | | (0.149) | (0.130) | (0.204) | (0.128) | (0.163) | | |
| Singapore | SGP | -0.173* | 0.119 | 0.133 | 0.0596 | 0.0129 | 9,116 | 26.9% |
| | | (0.0929) | (0.114) | (0.146) | (0.115) | (0.131) | | |
| Thailand | THA | 0.113 | 0.384* | 0.180 | 0.250 | -0.0681 | 7,182 | 41.3% |
| | | (0.149) | (0.229) | (0.153) | (0.185) | (0.133) | | |
| South Africa | ZAF | -0.409* | -0.107 | 0.390** | 0.153 | 0.366 | 4,421 | 29.5% |
| | | (0.210) | (0.221) | (0.181) | (0.187) | (0.373) | | |
| United States | USA | 0.126** | 0.169*** | 0.0968** | 0.0758 | 0.147** | 144,924 | 11.2% |
| | | (0.0620) | (0.0485) | (0.0480) | (0.0645) | (0.0699) | | |
| *French legal origin countries* | | | | | | | | |
| Argentina | ARG | 0.0926 | -0.146 | 0.597 | -0.0406 | 0.501 | 1,094 | 31.1% |
| | | (0.748) | (1.089) | (0.446) | (0.851) | (1.680) | | |

| | | Coefficient and SE on dNegCFO X CFO X dEquity | | | | | Equity sub-sample | |
|---|---|---|---|---|---|---|---|---|
| | | t+2 | t+1 | t0 | t0 | t-2 | t0 | t0 |
| Country | | (1) | (2) | Obs | Obs | (5) | Obs | $R^2$ |
| Belgium | BEL | 0.145 | 0.111 | -0.185 | -0.275* | -0.0866 | 2,078 | 25.2% |
| | | (0.166) | (0.129) | (0.113) | (0.144) | (0.116) | | |
| Brazil | BRA | -0.206 | -0.329 | -0.147 | -0.262 | -0.499 | 5,189 | 6.0% |
| | | (0.184) | (0.272) | (0.175) | (0.299) | (0.436) | | |
| Chile | CHL | -0.230 | 0.239 | 0.0629 | -0.0357 | 0.278 | 2,669 | 37.1% |
| | | (0.164) | (0.211) | (0.349) | (0.199) | (0.323) | | |
| Colombia | COL | 0.649 | -0.854** | -0.277 | -0.238 | 0.103 | 490 | 50.3% |
| | | (0.473) | (0.379) | (0.270) | (0.154) | (0.360) | | |
| Egypt | EGY | 0.385 | 0.227 | 0.406 | -1.131** | -0.519*** | 1,052 | 43.6% |
| | | (0.418) | (0.922) | (0.364) | (0.438) | (0.179) | | |
| Spain | ESP | 0.102 | -0.584* | 0.312 | -0.864** | -0.0606 | 2,623 | 41.9% |
| | | (0.588) | (0.335) | (0.542) | (0.349) | (0.377) | | |
| France | FRA | 0.0809 | -0.0485 | -0.0451 | -0.106 | 0.00281 | 12,449 | 23.8% |
| | | (0.105) | (0.126) | (0.100) | (0.104) | (0.128) | | |
| Greece | GRC | 0.293 | 0.128 | 0.204 | 1.191** | 0.352 | 2,944 | 42.9% |
| | | (0.407) | (0.312) | (0.669) | (0.495) | (1.824) | | |
| Indonesia | IDN | 0.541 | 0.0849 | 0.126 | -0.106 | 0.766*** | 5,160 | 34.3% |
| | | (0.345) | (0.336) | (0.346) | (0.241) | (0.163) | | |
| Italy | ITA | 0.634*** | 0.235 | 0.555*** | 0.326** | 0.369* | 4,307 | 32.7% |
| | | (0.129) | (0.148) | (0.197) | (0.155) | (0.214) | | |
| Luxembourg | LUX | 2.255 | -1.157 | -1.061 | -0.566 | -1.350* | 581 | 17.9% |
| | | (2.217) | (0.776) | (0.695) | (0.583) | (0.740) | | |
| Mexico | MEX | -0.373 | 0.108 | -0.279 | -0.178 | -0.523* | 1,910 | 42.1% |
| | | (0.305) | (0.515) | (0.199) | (0.384) | (0.296) | | |
| Netherlands | NLD | 0.368* | 0.141 | -0.0450 | -0.346 | -0.0959 | 3,245 | 20.3% |
| | | (0.221) | (0.307) | (0.222) | (0.385) | (0.315) | | |
| Peru | PER | 0.240 | 0.138 | -0.184 | 3.147** | -0.616*** | 1,272 | 44.9% |
| | | (0.350) | (0.534) | (0.538) | (0.672) | (0.221) | | |
| Philippines | PHL | -0.348** | -0.446** | -0.363* | -0.0842 | 0.125 | 2,714 | 17.2% |
| | | (0.167) | (0.187) | (0.213) | (0.289) | (0.223) | | |
| Portugal | PRT | 0.226 | -0.709* | 0.900*** | 0.438 | 0.600 | 936 | 41.2% |
| | | (1.001) | (0.366) | (0.340) | (0.487) | (0.523) | | |
| Russia | RUS | -0.0112 | -0.311 | 0.704** | 0.598 | 0.811*** | 2,692 | 38.0% |
| | | (0.401) | (0.229) | (0.320) | | (0.263) | | |

| | | Coefficient and SE on dNegCFO X CFO X dEquity | | | | | Equity sub-sample | |
|---|---|---|---|---|---|---|---|---|
| | | t+2 | t+1 | t0 | t0 | t-2 | t0 | t0 |
| Country | | (1) | (2) | Obs | Obs | (5) | Obs | $R^2$ |
| Turkey | TUR | -0.543** | -0.731** | -0.295 | -0.120 | 0.385 | 3,181 | 37.6% |
| | | (0.255) | (0.340) | (0.270) | (0.214) | (0.285) | | |
| Vietnam | VNM | 0.332** | 0.296* | 0.181** | 0.178* | 0.166 | 3,038 | 71.2% |
| | | (0.136) | (0.175) | (0.0863) | (0.0908) | (0.104) | | |
| *German legal origin countries* | | | | | | | | |
| Austria | AUT | -0.349 | -0.878 | -0.366 | 0.212 | 0.322 | 1,587 | 35.4% |
| | | (0.707) | (0.536) | (0.520) | (0.298) | (0.210) | | |
| Switzerland | CHE | 0.165 | 0.0162 | -0.0388 | 0.0180 | 0.0836 | 4,091 | 23.1% |
| | | (0.155) | (0.0677) | (0.111) | (0.146) | (0.107) | | |
| China | CHN | 0.0603 | 0.189*** | 0.181*** | 0.0606 | 0.113 | 36,474 | 44.5% |
| | | (0.0849) | (0.0669) | (0.0619) | (0.0998) | (0.0960) | | |
| Germany | DEU | 0.207 | 0.110 | 0.254*** | 0.255** | 0.303*** | 13,007 | 20.1% |
| | | (0.130) | (0.136) | (0.0832) | (0.0875) | (0.0992) | | |
| Japan | JPN | 0.310*** | 0.290*** | 0.356*** | 0.321** | 0.234*** | 60,092 | 46.4% |
| | | (0.104) | (0.105) | (0.107) | (0.0877) | (0.0775) | | |
| South Korea | KOR | -0.0135 | 0.326*** | 0.453*** | 0.402** | 0.215* | 11,285 | 29.4% |
| | | (0.114) | (0.120) | (0.127) | (0.114) | (0.125) | | |
| Poland | POL | 0.179 | 0.342 | 0.146*** | 0.231 | 0.0823 | 6,025 | 32.0% |
| | | (0.325) | (0.279) | (0.0332) | (0.297) | (0.359) | | |
| Taiwan | TWN | 0.267 | -0.0207 | 0.0532 | -0.0509 | -0.0155 | 19,185 | 43.1% |
| | | (0.165) | (0.150) | (0.181) | (0.146) | (0.140) | | |
| *Scandinavian legal origin countries* | | | | | | | | |
| Denmark | DNK | -0.0634 | -0.0599 | 0.0870 | -0.0617 | 0.185 | 2,635 | 19.0% |
| | | (0.274) | (0.200) | (0.158) | (0.164) | (0.170) | | |
| Finland | FIN | -0.498** | -0.246 | - | 0.107 | -0.291 | 2,411 | 22.5% |
| | | (0.217) | (0.166) | (0.116) | (0.114) | (0.208) | | |
| Norway | NOR | -0.0452 | 0.226*** | 0.219** | 0.113 | 0.333*** | 3,319 | 16.8% |
| | | (0.153) | (0.0802) | (0.0864) | (0.128) | (0.0973) | | |
| Sweden | SWE | 0.0649 | -0.151** | 0.0175 | -0.00823 | 0.0838 | 7,750 | 4.9% |
| | | (0.114) | (0.0732) | (0.0760) | (0.0552) | (0.103) | | |

*Table 4.4B: Debt results*

| | | Coefficient and SE on dNegCFO X CFO X dDebt | | | | | Debt sub-sample | |
|---|---|---|---|---|---|---|---|---|
| | | t+2 | t+1 | t0 | t0 | t-2 | t0 | t0 |
| Country | | (1) | (2) | Obs | Obs | (5) | Obs | $R^2$ |
| *English legal origin countries* | | | | | | | | |
| Australia | AUS | 0.700*** | 0.856*** | 0.679*** | 0.184** | -0.541 | 24,305 | 5.1% |
| | | (0.0922) | (0.0635) | (0.149) | (0.0926) | (0.746) | | |
| United Kingdom | GBR | 2.421*** | 0.670** | 0.422*** | -0.223 | 0.624*** | 30,211 | 7.5% |
| | | (0.442) | (0.304) | (0.144) | (0.312) | (0.135) | | |
| Hong Kong | HKG | -1.297** | -0.188 | -0.199 | -0.165 | 14.82*** | 2,502 | 32.2% |
| | | (0.578) | (0.209) | (0.315) | (0.124) | (4.117) | | |
| India | IND | 0.149 | -0.211** | 0.422 | 0.266 | 0.213 | 42,390 | 55.9% |
| | | (0.216) | (0.0870) | (0.269) | (0.261) | (0.193) | | |
| Ireland | IRL | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Israel | ISR | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Sri Lanka | LKA | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Malaysia | MYS | -0.347** | -0.401 | 0.165 | -0.260** | -0.428* | 14,214 | 24.9% |
| | | (0.166) | (0.350) | (0.110) | (0.131) | (0.247) | | |
| New Zealand | NZL | - | - | - | - | - | 2,093 | 9.9% |
| Singapore | SGP | - | - | - | - | -0.553*** | 9,116 | 27.0% |
| | | (0.137) | (0.153) | (0.149) | (0.151) | (0.125) | | |
| Thailand | THA | -0.291 | -0.0428 | -0.118 | -0.142 | -0.0312 | 7,182 | 41.4% |
| | | (0.191) | (0.136) | (0.112) | (0.197) | (0.120) | | |
| South Africa | ZAF | 9.060*** | - | - | -0.353 | 1.970*** | 4,421 | 29.3% |
| | | (0.628) | (0.206) | | (0.238) | (0.210) | | |
| United States | USA | -0.172 | -0.0240 | -0.0773 | -0.0234 | -0.149* | 144,924 | 11.2% |
| | | (0.181) | (0.131) | (0.161) | (0.119) | (0.0785) | | |
| *French legal origin countries* | | | | | | | | |
| Argentina | ARG | -0.780 | 0.383 | -0.0440 | -1.131* | 0.311 | 1,094 | 31.2% |
| | | (0.679) | (0.590) | (0.328) | (0.607) | (1.845) | | |
| Belgium | BEL | - | - | - | -1.455** | - | 2,078 | 24.9% |
| | | | | | (0.672) | | | |
| Brazil | BRA | -0.216 | -0.552 | -0.145 | -0.489 | -0.810** | 5,189 | 6.0% |
| | | (0.283) | (0.357) | (0.312) | (0.537) | (0.348) | | |

| | | Coefficient and SE on dNegCFO X CFO X dDebt | | | | | Debt sub-sample | |
|---|---|---|---|---|---|---|---|---|
| | | t+2 | t+1 | t0 | t0 | t-2 | t0 | t0 |
| Country | | (1) | (2) | Obs | Obs | (5) | Obs | $R^2$ |
| Chile | CHL | - | - | -0.743** | - | -2.439*** | 2,669 | 37.2% |
| | | (0.172) | (0.171) | (0.341) | (0.222) | (0.351) | | |
| Colombia | COL | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Egypt | EGY | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Spain | ESP | - | - | - | - | - | 2,623 | 41.1% |
| France | FRA | 1.376*** | - | 1.146 | -1.008 | -1.087 | 12,449 | 23.5% |
| | | (0.413) | (0.177) | (1.436) | (1.218) | (1.334) | | |
| Greece | GRC | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Indonesia | IDN | 2.367** | 0.364 | 0.0834 | 0.550 | 1.438*** | 5,160 | 34.2% |
| | | (1.151) | (0.533) | (0.274) | (0.651) | (0.518) | | |
| Italy | ITA | 0.0967 | 2.531** | - | -0.0613 | 0.243 | 4,307 | 31.3% |
| | | (1.113) | (1.158) | (0.310) | (0.448) | (0.163) | | |
| Luxembourg | LUX | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Mexico | MEX | -0.623** | 0.00899 | -0.0625 | - | -0.447 | 1,910 | 42.2% |
| | | (0.296) | (0.446) | (0.270) | (0.265) | (0.337) | | |
| Netherlands | NLD | - | 6.924*** | 4.853 | 0.376 | -0.793 | 3,245 | 19.8% |
| | | | (0.322) | (3.485) | (0.496) | (0.975) | | |
| Peru | PER | 0.323 | 0.142 | 0.752 | 4.460** | -0.233 | 1,272 | 44.7% |
| | | (0.257) | (0.467) | (1.979) | (1.423) | (0.158) | | |
| Philippines | PHL | -0.440 | - | -0.663* | 0.221 | -0.0384 | 2,714 | 15.5% |
| | | (0.561) | (0.606) | (0.383) | (0.219) | (0.589) | | |
| Portugal | PRT | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Russia | RUS | 0.118 | -0.515** | -0.287 | 1.332** | 2.443*** | 2,692 | 37.7% |
| | | (0.553) | (0.236) | (0.799) | (0.565) | (0.524) | | |
| Turkey | TUR | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Vietnam | VNM | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |

| | | Coefficient and SE on dNegCFO X CFO X dDebt | | | | | Debt sub-sample | |
|---|---|---|---|---|---|---|---|---|
| | | t+2 | t+1 | t0 | t0 | t-2 | t0 | t0 |
| Country | | (1) | (2) | Obs | Obs | (5) | Obs | $R^2$ |
| *German legal origin countries* | | | | | | | | |
| Austria | AUT | - | - | - | - | - | 1,587 | 35.2% |
| Switzerland | CHE | - | 1.082*** | - | -0.0465 | -0.601*** | 4,091 | 22.8% |
| | | | (0.212) | | (0.141) | (0.107) | | |
| China | CHN | 0.0506 | 0.0523 | 0.0731 | -0.228** | 0.0992 | 36,474 | 44.5% |
| | | (0.0682) | (0.0877) | (0.153) | (0.0984) | (0.160) | | |
| Germany | DEU | -0.350 | - | 0.944 | -0.596** | -0.653*** | 13,007 | 19.8% |
| | | (0.443) | (0.219) | (0.759) | (0.304) | (0.222) | | |
| Japan | JPN | -0.317 | - | -0.0985 | - | -0.136 | 60,092 | 46.2% |
| | | (0.223) | (0.121) | (0.233) | (0.115) | (0.167) | | |
| South Korea | KOR | - | - | - | -0.311** | -0.306* | 11,285 | 27.4% |
| | | (0.155) | (0.106) | (0.104) | (0.140) | (0.177) | | |
| Poland | POL | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Taiwan | TWN | -0.330** | -0.607** | -0.303 | 0.0104 | -0.431 | 19,185 | 43.0% |
| | | (0.151) | (0.238) | (0.319) | (0.398) | (0.409) | | |
| *Scandinavian legal origin countries* | | | | | | | | |
| Denmark | DNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | | n/a | n/a | n/a | n/a | n/a | | |
| Finland | FIN | -0.777 | -1.349 | -0.741 | -1.209 | -4.398*** | 2,411 | 22.0% |
| | | (0.487) | (1.213) | (0.508) | (1.151) | (1.142) | | |
| Norway | NOR | - | 0.0226 | 0.408 | - | -0.638 | 3,319 | 15.5% |
| | | (0.539) | (1.725) | (1.195) | (0.464) | (2.097) | | |
| Sweden | SWE | 1.067 | 0.183 | -0.445 | 0.247 | 0.240* | 7,750 | 4.7% |
| | | (0.821) | (0.154) | (0.342) | (0.175) | (0.145) | | |

Notes: OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ACC*, accruals (income before extraordinary items minus operating cash flow). As for the independent variables in the columns, *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dEquity (dDebt)* is an indicator variable for an equity (debt) issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. *ΔSales, PPE, CFO, dNegCFO, dEquity(dDebt)* as well as the untabulated interaction variables are included in the regressions but their coefficients are not shown. Within brackets are standard errors that are heteroscedasticity-consistent.

significant and positive coefficients of *dDeal*dNegCFO*CFO* in columns (1) and (2) in Table 4.4A (the same holds in Table 4.4B for debt). Likewise, if firms report more conservatively post-deal, one would observe positive coefficients in columns (4) and (5). Contemporaneous effects of issues on the recognition of losses in accruals are captured in column (3).

The results in Panel A indicate conservatism in the years around equity issues by firms in the US, Italy, Vietnam and most countries with a German legal origin. This supports the view that timely recognition of economic losses functions as a way for issuers to enhance earnings quality and address the demand for conservatism by (outside) investors for improved compensation, governance contracting and mitigation of information asymmetry between firm insiders and outside shareholders. In a few countries (e.g. the Philippines, Egypt and Spain), however, secondary offerings are associated with less conservative reporting albeit the effects are rather sporadic.

In contrast to secondary offerings, debt issues appear to have insignificant or unclear effects on conservatism for firms in the US and Italy. Less timeliness in loss recognition in accruals around debt issues is in fact observed in countries with German legal traditions (where sufficient data are available), as well as in Singapore, Malaysia and Chile. The absence of significant and positive coefficients in most countries in the sample weakens the debtholder demand theory. A reason for this could be that the generally strong cash flows of the debt-issuing firms reduce the probability of default and hence the importance of the contracting benefits of conservatism. To understand the negative correlations between conservative reporting and debt issues is, however, more difficult; one potential explanation is that firms in these countries might want to report the best possible profitability level in their audited financial statements in order to attract funding from lenders and bond investors. Conversely, the results in Table 4.4 indicate increased conservatism around debt deals (especially before) in Australia

and the UK, implying a demand for conservatism by debt providers in these two common law countries.

Using an extensive dataset covering more than 25 years makes it possible to perform the above regression analyses in different sub-periods. The results in Table 4.5A show the impact of the global financial crisis on the timeliness of loss recognition by firms in the different countries. A comparison with the aggregate conservatism effects in Table 4.3 (the main model) reveals a number of interesting findings. First, reporting behaviors of firms are consistent across all sub-periods in only 26 out of the 45 countries in the sample (i.e. the coefficients carry the same sign and either all significant or all insignificant). This means that there is variation in the outcomes reported in Table 3. Second, although there are no main conservatism effects in aggregate (i.e. the coefficient on the *dNegCFO * CFO* variable is not significant), companies in Hong Kong, Argentina and Egypt actually exhibit less conservatism during the financial crisis, as seen from their significantly negative coefficients in Table 4.5A. There are also cases where the effects in the main model disappear during the crisis period. For example, the conservative reporting registered in Table 4.3 for Ireland, Italy and Austria is captured in periods 2 and 4 but not in period 3, implying that firms in these three Western European countries on average do not recognize losses more timely than gains during the credit crunch years although they do so in the pre- and post-crisis periods. Conversely, for Thailand and Peru, the less conservative reporting in the main model does not show up in the crisis period. Further, for three developing economies with a French legal origin (Brazil, Chile and the Philippines), conservative reporting is observed only in the years preceding the crisis, while conservatism in two Scandinavian countries (Denmark and Sweden) is in effect in the period up to and including the crisis but disappears in the period thereafter. Finally, the significant conservatism effect for the Netherlands in Table 4.3

## Table 4.5: Conservatism across periods

*Table 4.5A: Conservatism across periods – Main model*

| Coefficient on: dNegCFO X CFO/TA t-1 | Period 1 1987 - 1997 | Period 2 1998 - 2006 | Period 3 2007 - 2009 | Period 4 2010 - 2015 | R-squared Period 1 1987 - 1997 | R-squared Period 2 1998 - 2006 | R-squared Period 3 2007 - 2009 | R-squared Period 4 2010 - 2015 |
|---|---|---|---|---|---|---|---|---|
| *English legal origin countries* | | | | | | | | |
| Australia | 0.485*** | 0.463*** | 0.414*** | 0.378*** | 9.3% | 3.7% | 2.7% | 7.2% |
| United Kingdom | 0.660*** | 0.415*** | 0.426*** | 0.533*** | 30.7% | 6.3% | 3.4% | 8.2% |
| Hong Kong | -0.315 | -0.191 | -0.406*** | -0.198 | 45.0% | 25.9% | 33.0% | 37.5% |
| India | -0.359*** | -0.515*** | -0.426*** | -0.348*** | 66.4% | 54.9% | 63.5% | 52.1% |
| Ireland | 0.751** | 0.876*** | 0.437 | 0.427*** | 36.1% | 26.5% | 10.9% | 8.8% |
| Israel | 0.337 | 0.392*** | 0.191*** | 0.557*** | 12.3% | 8.3% | 6.7% | 7.4% |
| Sri Lanka | -0.894*** | -0.551*** | -0.481*** | -0.605*** | 76.4% | 50.8% | 49.9% | 54.5% |
| Malaysia | 0.0531* | -0.315*** | -0.364*** | -0.408*** | 35.0% | 20.9% | 24.6% | 27.7% |
| New Zealand | -0.323 | 0.700*** | 0.533*** | 0.583*** | 56.8% | 11.6% | 7.3% | 9.5% |
| Singapore | -0.0516 | -0.00927 | 0.0414 | 0.0797 | 56.6% | 26.6% | 28.7% | 24.8% |
| Thailand | -0.245* | -0.449*** | -0.246 | -0.384*** | 57.0% | 37.0% | 42.2% | 44.9% |
| South Africa | 0.906*** | -0.156 | -0.150 | -0.0680 | 58.5% | 28.4% | 32.0% | 27.5% |
| United States | 0.525*** | 0.480*** | 0.389*** | 0.413*** | 16.7% | 10.3% | 8.0% | 9.5% |
| *French legal origin countries* | | | | | | | | |
| Argentina | -1.005 | 0.416 | -1.180*** | -0.255 | 89.5% | 20.9% | 53.7% | 48.2% |
| Belgium | -2.446 | 0.577*** | 0.421** | 0.464*** | 29.3% | 26.7% | 31.4% | 19.2% |
| Brazil | 1.000*** | 0.611*** | -0.0856 | 0.0877 | 34.3% | 13.3% | 10.4% | 3.2% |
| Chile | 0.739*** | 0.354*** | -0.250 | -0.0881 | 45.5% | 36.4% | 45.0% | 40.0% |
| Colombia | - | -1.177** | -0.877** | -0.893** | 61.1% | 48.5% | 49.8% | 62.2% |
| Egypt | - | -0.391 | -0.722*** | -0.113 | - | 49.2% | 45.0% | 34.0% |
| Spain | - | 0.572 | -0.119 | -0.125 | 19.1% | 47.0% | 34.3% | 28.3% |
| France | 0.733** | 0.510*** | 0.549*** | 0.546*** | 27.8% | 25.7% | 19.8% | 14.0% |
| Greece | - | 0.0459 | -0.222 | -0.257 | 34.2% | 59.3% | 56.3% | 17.4% |
| Indonesia | 0.439*** | -0.489* | -0.696*** | -0.657*** | 47.6% | 22.3% | 46.5% | 47.8% |
| Italy | -0.182 | 0.352*** | 0.248 | 0.339** | 59.9% | 34.8% | 33.9% | 24.4% |
| Luxembourg | 1.309*** | 0.715*** | -0.986* | 2.824*** | 57.0% | 33.8% | 46.1% | 29.5% |
| Mexico | -0.355 | 0.284** | 0.0611 | -0.390*** | 35.5% | 40.0% | 38.0% | 50.7% |
| Netherlands | 0.367* | 0.185 | 0.571*** | 0.534*** | 62.9% | 18.5% | 13.7% | 9.2% |
| Peru | 0 | -0.581*** | -0.384 | -0.659*** | - | 45.3% | 49.8% | 46.3% |
| Philippines | 0.296*** | 0.287** | 0.294 | 0.0859 | 59.2% | 9.9% | 24.8% | 30.1% |

| Coefficient on: dNegCFO X CFO/TA t-1 | Period 1 1987 - 1997 | Period 2 1998 - 2006 | Period 3 2007 - 2009 | Period 4 2010 - 2015 | R-squared Period 1 1987 - 1997 | R-squared Period 2 1998 - 2006 | R-squared Period 3 2007 - 2009 | R-squared Period 4 2010 - 2015 |
|---|---|---|---|---|---|---|---|---|
| Portugal | 1.395*** | 0.214 | 0.310 | -0.0482 | 50.8% | 40.7% | 36.1% | 47.4% |
| Russia | - | -0.554** | -0.457*** | -0.438** | 77.2% | 41.4% | 45.5% | 33.4% |
| Turkey | 0.104 | 0.269 | -0.125 | -0.357*** | 48.7% | 31.8% | 32.3% | 46.0% |
| Vietnam | - | -0.407*** | -0.199* | -0.400*** | - | 80.7% | 78.4% | 66.4% |
| *German legal origin countries* | | | | | | | | |
| Austria | 1.004** | 0.633*** | 0.717 | 0.619*** | 42.1% | 31.5% | 30.8% | 33.2% |
| Switzerland | 1.049 | 0.612*** | 0.571*** | 0.547*** | 48.8% | 22.8% | 16.9% | 13.7% |
| China | -0.485 | -0.447*** | -0.557*** | -0.663*** | 23.0% | 49.2% | 44.8% | 51.8% |
| Germany | -0.0811 | 0.337*** | 0.213*** | 0.328*** | 41.0% | 23.3% | 19.0% | 10.9% |
| Japan | 0.570** | 0.237*** | 0.389*** | 0.309*** | 14.4% | 42.4% | 33.7% | 43.0% |
| South Korea | 0.129 | 0.252** | 0.373*** | 0.203*** | 76.4% | 32.8% | 20.9% | 25.0% |
| Poland | - | -0.321** | -0.0866 | -0.0580 | 76.1% | 40.0% | 37.5% | 30.8% |
| Taiwan | -0.0789 | -0.620*** | -0.304*** | 0.0606 | 58.5% | 47.3% | 46.6% | 40.3% |
| *Scandinavian legal origin countries* | | | | | | | | |
| Denmark | -0.164 | 0.374*** | 0.411** | 0.0665 | 60.6% | 18.7% | 19.7% | 9.2% |
| Finland | -2.701*** | 0.630*** | 0.666*** | 0.437** | 44.6% | 21.7% | 28.1% | 13.8% |
| Norway | 0.294*** | 0.504*** | 0.415*** | 0.709*** | 25.0% | 14.2% | 13.7% | 19.0% |
| Sweden | -0.176 | 0.433*** | 0.280*** | 0.0411 | 46.8% | 6.0% | 6.3% | 4.0% |

Notes: Summary table showing the results of OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ACC*, accruals (income before extraordinary items minus operating cash flow). As for the independent variables (not all are shown), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow and *dNegCFO* is an indicator variable for negative CFO during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. *ΔSales*, *PPE*, *CFO* and *dNegCFO* are included in the regressions but their coefficients are not shown.

*Table 4.5B: Relation between conservatism and deals across periods – Equity*

| | Period 1 - 1987 – 1997 | | | | | Period 2 - 1998 – 2006 | | | | | Period 3 - 2007 -2009 | | | | | Period 4 - 2010 – 2015 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 |
| *English legal origin countries* | | | | | | | | | | | | | | | | | | | | |
| Australia | | + | | | --- | | | | | | + | | | --- | | | | | | |
| United Kingdom | | --- | --- | | | --- | | ++ | | | | | --- | | -- | | | | | |
| Hong Kong | | + | | | --- | | + | | | | -- | | | | -- | | | -- | | |
| India | | | | | --- | | | | | | | | | | -- | | | | + | |
| Ireland | ++ | | | | | | | - | -- | | | | | | --- | ++ | ++ | | | |
| Israel | | | | | | | | | - | | | | | ++ | | -- | | --- | | |
| Sri Lanka | | | | | | | | | | | | | | | | | | | | |
| Malaysia | --- | -- | --- | | --- | -- | | | | | | | | | -- | | | | | |
| New Zealand | | | | | --- | | -- | --- | | -- | ++ | - | | ++ | - | ++ | -- | ++ | | ++ |
| Singapore | | | ++ | | + | | | | ++ | | -- | -- | | | | | ++ | --- | | |
| Thailand | | | | | ++ | | | + | | | | | ++ | | | | | | | |
| South Africa | | | | | --- | | - | + | ++ | ++ | --- | | ++ | + | --- | | | ++ | | |
| United States | ++ | ++ | ++ | ++ | ++ | | | | | | ++ | ++ | | | | ++ | ++ | | | --- |
| *French legal origin countries* | | | | | | | | | | | | | | | | | | | | |
| Argentina | | | | | | | | | | ++ | | ++ | --- | | | | | | --- | |
| Belgium | | | | | | - | | --- | | | | | - | --- | | + | | | | |
| Brazil | | | -- | --- | | | | --- | | | | | ++ | | | | | | | |
| Chile | | | | | | --- | | -- | --- | | | | | --- | --- | | ++ | | | |
| Colombia | | | | | | | --- | ++ | | + | | --- | | | | - | --- | | | |
| Egypt | | | | | | ++ | ++ | | | | | | | | + | | --- | | - | |
| Spain | | | | | | --- | -- | | - | ++ | ++ | --- | | | | | | | | |
| France | -- | - | | --- | | ++ | | | | | | | | | | | -- | - | | |
| Greece | | | | | | | | | | | | + | | ++ | --- | - | | | + | |
| Indonesia | | | ++ | - | ++ | | - | | | ++ | + | | --- | ++ | | + | ++ | | | |
| Italy | | ++ | | | | | | | ++ | | | | | | | ++ | | ++ | | |
| Luxembourg | | --- | | | | --- | --- | -- | | | | -- | --- | | | ++ | - | -- | | |
| Mexico | | | ++ | ++ | ++ | | | ++ | ++ | --- | | | -- | --- | | | -- | --- | --- | --- |
| Netherlands | --- | -- | --- | | | | | | -- | | | | | ++ | ++ | | | - | | |
| Peru | | | | | | | | | ++ | | --- | | | | | ++ | | | ++ | --- |
| Philippines | | | | | ++ | | | | ++ | | | --- | --- | | | --- | | | | ++ |
| Portugal | | | | | --- | ++ | --- | ++ | ++ | | --- | | | --- | | | | | ++ | |
| Russia | | | | | | | | | | | -- | --- | -- | | ++ | | | ++ | ++ | ++ |
| Turkey | | | | | | | --- | --- | | --- | | - | - | | | | | | | ++ |
| Vietnam | | | | | | | | | | | | | | | | | | ++ | ++ | |

| | Period 1 - 1987 – 1997 | | | | | Period 2 - 1998 – 2006 | | | | | Period 3 - 2007 -2009 | | | | | Period 4 - 2010 – 2015 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 |
| *German legal origin countries* | | | | | | | | | | | | | | | | | | | | |
| Austria | | | | | | | -- | | ++ | | | ++ | --- | --- | ++ | ++ | | | --- | |
| Switzerland | | | | | | ++ | | | | ++ | | | | | | - | | | | |
| China | | | | | | | | | | | + | | | | | | ++ | ++ | + | ++ |
| Germany | - | | ++ | | | | | | | | | | ++ | | | + | | | | ++ |
| Japan | --- | --- | -- | - | | ++ | ++ | ++ | + | | | | ++ | | | | | | ++ | ++ |
| South Korea | -- | | | | | ++ | | | | | | + | | ++ | | | ++ | ++ | ++ | ++ |
| Poland | | | | | | | | -- | ++ | | | | | ++ | ++ | | | | | |
| Taiwan | | | | | | ++ | | | ++ | + | ++ | | ++ | | | | | | - | |
| *Scandinavian legal origin countries* | | | | | | | | | | | | | | | | | | | | |
| Denmark | | ++ | | | --- | | | | | + | | | | | | | | | | |
| Finland | - | -- | | -- | -- | | | | | | --- | | | | --- | - | --- | | | --- |
| Norway | | --- | ++ | -- | ++ | --- | | | | | | | | | ++ | ++ | | ++ | | ++ |
| Sweden | | --- | ++ | ++ | | | | | --- | | | | - | | ++ | | | | ++ | |

Notes: Summary table showing the results of OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ACC*, accruals (income before extraordinary items minus operating cash flow). As for the independent variables (not all are shown), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDeal* is an indicator variable for an equity or debt issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. *ΔSales, PPE, CFO, dNegCFO, dDeal* as well as the untabulated interaction variables are included in the regressions but their coefficients are not shown. A plus (minus) sign indicates a positive (negative) coefficient on the variable $dNegCFO\ X\ CFO/TA_{t-1}\ X\ dEquity_{t-1}$, which represents increased (decreased) conservative reporting exhibited by the issuers, with their number corresponding to the significance level (for instance, three pluses indicate a positive correlation and statistical significance level of 0.01 while two minuses mean that the coefficient is negative and significant at the 0.05 level).

*Table 4.5C: Relation between conservatism and deals across periods - Debt*

| | Period 1 - 1987 – 1997 | | | | | Period 2 - 1998 – 2006 | | | | | Period 3 - 2007 -2009 | | | | | Period 4 - 2010 – 2015 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | t+2 | t+ | t0 | t-1 | t-2 | t+ | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 |
| *English legal origin* | | | | | | | | | | | | | | | | | | | | |
| Australia | | | | | | | | | --- | | ++ | | ++ | | | | --- | ++ | | |
| United Kingdom | | | | ++ | | --- | + | ++ | --- | --- | ++ | | | | ++ | ++ | ++ | ++ | -- | --- |
| Hong Kong | | | | | | | | | | | --- | | | | | | | | | |
| India | | | | | | | | | - | | | | | | | | --- | + | | |
| Ireland | ++ | | | | | | ++ | ++ | --- | ++ | | | | | | | | | | |
| Israel | | | | | | | | | | | | | | | | | | | | |
| Sri Lanka | | | | | | | | | | | | | | | | | | | | |
| Malaysia | --- | | -- | | -- | - | | | | --- | | ++ | | - | | | | | | |
| New Zealand | | | | | | | | | | | | | | | | | | | | |
| Singapore | | | | | | --- | -- | -- | --- | | | -- | | | --- | --- | --- | --- | --- | --- |
| Thailand | | | | | | | | | ++ | | -- | | --- | | --- | | | | | |
| South Africa | | | | | | | | | | | | | | | | | -- | | | ++ |
| United States | | | | | | | | | ++ | + | | -- | -- | | --- | - | | | -- | -- |
| *French legal origin* | | | | | | | | | | | | | | | | | | | | |
| Argentina | | | | | | | | | | | | | | | | - | + | | - | |
| Belgium | | | | | | | | | | | | | | | | | | | --- | |
| Brazil | --- | | | | | | | --- | | | --- | | ++ | | -- | | --- | | - | --- |
| Chile | | | | | | --- | | ++ | ++ | | | -- | --- | | --- | | | | | |
| Colombia | | | | | | + | | ++ | | ++ | | | | | | | | | | ++ |
| Egypt | | | | | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | | | | | |
| France | | | | | | | | ++ | - | | ++ | | ++ | ++ | | --- | --- | --- | --- | - |
| Greece | | | | | | | | | | | | | | | | | | | | |
| Indonesia | | - | | | | ++ | | | | ++ | | ++ | ++ | | | | | | | |
| Italy | | | | | | | ++ | --- | ++ | ++ | | | | | | | | --- | ++ | |
| Luxembourg | | | | | | | | | ++ | ++ | | | | | | | | | | |
| Mexico | | | | ++ | ++ | --- | | ++ | -- | --- | | --- | --- | ++ | | | | --- | --- | --- |
| Netherlands | | | | | | | ++ | | | + | | | | | | | | | | |
| Peru | | | | | | | | | | | --- | | | | | | | + | | |
| Philippines | | | | | | | | | | | | --- | | | | | --- | | | --- |
| Portugal | | | | | --- | | | ++ | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | --- | | ++ | | ++ | - | ++ | | ++ |
| Turkey | | | | | | | | | | | | | | | | | | | | |
| Vietnam | | | | | | | | | | | | | | | | | | | | |

| | Period 1 - 1987 – 1997 | | | | | Period 2 - 1998 – 2006 | | | | | Period 3 - 2007 -2009 | | | | | Period 4 - 2010 – 2015 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | t+2 | t+ | t0 | t-1 | t-2 | t+ | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 | t+2 | t+1 | t0 | t-1 | t-2 |
| *German legal origin* | | | | | | | | | | | | | | | | | | | | |
| Austria | | | | | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | - | | | | | | | ++ | | --- | --- |
| China | | | | | | | | | | | | | | --- | --- | ++ | ++ | + | | + |
| Germany | | | | | | ++ | --- | ++ | | -- | - | | | | | - | --- | --- | --- | --- |
| Japan | -- | --- | -- | -- | | --- | -- | | | | | --- | --- | --- | | | | - | --- | --- |
| South Korea | -- | | | | | | --- | | | - | --- | -- | --- | --- | --- | -- | -- | --- | | |
| Poland | | | | | | | | | | | | | | | | --- | --- | | | |
| Taiwan | | | | | | | | | | | ++ | ++ | | | | | --- | --- | --- | |
| *Scandinavian legal* | | | | | | | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | | | | | |
| Finland | | | | - | -- | | | | | | | | | | --- | | | | | |
| Norway | | | | | | | | ++ | | | | | | | | | | | -- | |
| Sweden | | | | | | | ++ | ++ | --- | --- | | | | | | --- | | | ++ | + |

Notes: Summary table showing the results of OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ACC*, accruals (income before extraordinary items minus operating cash flow). As for the independent variables (not all are shown), *Δ Sales* is change in revenues, *PPE* is gross property plant and equipment, *CFO* is operating cash flow, *dNegCFO* is an indicator variable for negative CFO during the fiscal year and *dDeal* is an indicator variable for an equity or debt issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. *ΔSales, PPE, CFO, dNegCFO, dDeal* as well as the untabulated interaction variables are included in the regressions but their coefficients are not shown. A plus (minus) sign indicates a positive (negative) coefficient on the variable $dNegCFO\ X\ CFO/TA_{t-1}\ X\ dDebt_{t-1}$, which represents increased (decreased) conservative reporting exhibited by the issuers, with their number corresponding to the significance level (for instance, three pluses indicate a positive correlation and statistical significance level of 0.01 while two minuses mean that the coefficient is negative and significant at the 0.05 level).

appears to be triggered by the financial crisis, as evidenced by the non-significant coefficient in Table 4.5A in sub-period 2 and significantly positive ones in the following sub-periods.

Tables 4.5B and 4.5C summarize the effects of fundraising activities on how companies exercise conservatism in their financial reporting in the different sub-periods. Increased (decreased) conservative reporting exhibited by issuers is represented as a plus (minus) sign, with their number corresponding to the significance level (for instance, three pluses indicate a positive correlation and statistical significance level of 0.01 while two minuses mean that the coefficient is negative and significant at the 0.05 level). The results in Table 4.5B show great variation among countries. One of the countries with strong effects is the US, where equity issuers appear to be more conservative both pre- and post-deal in the late 80s to late 90s. Timeliness of loss recognition disappears in the 2000s prior to the financial crisis. Pre-deal conservatism then reappears during the crisis and remains in the period thereafter. In Italy and Vietnam, the increased conservatism observed in Table 4.4 seems to be driven by the post-crisis period. In some other countries, firms' reporting behavior changes through time. For instance, equity issuers in Mexico display more conservatism pre-crisis but less in the post-crisis period; meanwhile in Russia less conservatism is associated with equity offerings during the crisis but more conservative reporting is observed among companies that raise equity in the period thereafter. While the results are varied within the English, French and Scandinavian legal traditions, there trend is clear for the German legal origin countries. The key observation here is that the incremental conservatism observed in Table 4.4 is driven by positive effects during the crisis and in the post-crisis period (with Japan exhibiting increased conservatism also in sub-period 2).

Compared to the results for equity-issuing firms, the relationship between incremental conservatism and debt issues is less clear. In Australia and the UK, the

increased conservatism shown in Table 4.4 appears to be driven by the reporting behaviors of firms in the two countries in sub-periods 3 and 4, which supports the debtholders' demand view in the period in which the information asymmetry is most acute. In France, although there is no significant relationship between debt issues and conservatism (as reported in Table 4.4), the results in Table 4.5C actually indicate increased conservatism by debt issuers during the crisis and decreased conservatism post-crisis. Another observation here is that the more (less) conservative reporting by firms in Russia (Mexico) captured in Table 4.4 is driven by the results in the post-crisis period. Finally, in contrast to firms that raise equity financing, debt issuers in the German origin countries (apart from China) generally exhibit less conservatism compared to non-issuers and this result primarily follows the reporting behavior of firms in these countries during the recent economic downturn as well as the post-crisis period.

### 4.3.3 Country level regression results

In the second-stage analysis, I investigate the relationship between the country characteristics and their respective aggregate measures of conservatism. The first set of results is reported in Table 4.6, where the dependent variable is the coefficient $\alpha_5$ on the timeliness of loss recognition variable *dNegCFO*CFO* from Table 3. The first observation from columns (1), (2) and (3) is that the inclusion of the bond market development and investor right protection variables substantially increases the explanatory power of the model. This is evident from the increase in the R-squared statistic from 21.0% to 54.0%. The key conclusion of this table is in column (3), which shows that conservatism is significantly lower for countries with Scandinavian legal origin, GDP per capital growth and creditor rights. The significantly negative coefficient on *dScandinavian* and insignificant coefficient on *dBritish* contradict the result of Ball et al. (2008), in which Scandinavian and English origin countries are both associated with higher level of conditional

**Table 4.6: Relation between conservatism and country-level factors**

| VARIABLES | (1) $\alpha_4$ | (2) $\alpha_4$ | (3) $\alpha_4$ | (4) $\alpha_4$ | (5) $\alpha_4$ |
|---|---|---|---|---|---|
| dBritish | -4.547 | -0.748 | -3.041 | -2.790 | -1.977 |
| | (2.831) | (3.658) | (3.584) | (3.714) | (3.702) |
| dFrench | -3.802* | -2.758 | -4.359 | -4.898 | -4.332 |
| | (1.892) | (2.379) | (2.981) | (2.875) | (3.024) |
| dScandinavian | -2.658 | -1.847 | -5.321* | -7.151** | -9.165** |
| | (1.782) | (3.668) | (2.806) | (3.027) | (4.107) |
| GDPCapGr | -1.445*** | -1.308** | -2.111*** | -1.519** | -0.549 |
| | (0.493) | (0.510) | (0.718) | (0.723) | (0.718) |
| MktCap_GDP | 0.843 | 0.442 | -0.939 | -1.846 | -1.061 |
| | (2.019) | (1.800) | (1.294) | (1.269) | (1.392) |
| Ln(Firms_Pop) | 2.539*** | 1.398 | 0.359 | 0.779 | -1.159 |
| | (0.911) | (1.198) | (1.237) | (1.271) | (1.392) |
| Bond_GDP | | 7.347* | 2.270 | 2.105 | 6.118** |
| | | (3.729) | (3.136) | (2.760) | (2.924) |
| Creditor | | | -1.599* | -1.958** | -1.941* |
| | | | (0.789) | (0.937) | (0.940) |
| PriEnforce | | | 5.449 | 6.792 | 2.040 |
| | | | (6.891) | (5.839) | (5.773) |
| PubEnforce | | | 7.676* | 4.856 | 5.297 |
| | | | (3.807) | (4.152) | (4.331) |
| RiskExp | | | 3.975*** | | |
| | | | (0.926) | | |
| RuleLaw | | | | 2.074*** | |
| | | | | (0.518) | |
| Corruption | | | | | 2.516*** |
| | | | | | (0.730) |
| Constant | 2.331 | -0.334 | -27.58*** | -8.960* | -6.938 |
| | (3.184) | (3.358) | (7.200) | (4.355) | (5.298) |
| Observations | 42 | 39 | 36 | 36 | 36 |
| Adjusted R-squared | 21.0% | 33.8% | 54.0% | 49.6% | 47.0% |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: OLS regression model with robust standard errors, where the dependent variables are the conservatism coefficients from the firm-level regressions (i.e. $\alpha_4$), scaled by their absolute standard errors. Explanatory variables are country characteristics. *dBritish*, *dFrench* and *dScandinavian* are indicator variables denoting whether a country has English common law, French civil law or Scandinavian civil law legal tradition. If these dummy variables are zero, the country has a German civil law origin. Details and sources of the other explanatory variables are provided in Table 4.2. Figures shown are slope coefficients and within brackets are standard errors that are heteroscedasticity-consistent.

conservatism. This could imply that the findings from that study no longer hold when more recent data and more countries are included, although it is also worth mentioning that the conservatism measure is different (accrual-based here compared to the Basu model applied in Ball et al. (2008)).

A possible explanation for the negative coefficient on *Creditor* is that strong creditor rights may lessen the importance of (and therefore the demand for) conservative reporting practice. In contrast, investor protection (based on the assessment of risk expropriation) is positively associated with conservatism. This suggests that asymmetrical timeliness of loss recognition is prevalent in countries that has strong institutional framework. Substituting the risk of expropriation (*RiskExp*) with the two other proxies for investor protection (*RuleLaw* and *Corruption*), as seen in columns (4) and (5), does not change the conclusion. Notably, the significant impact that the protection of creditor and investor rights has on conservatism is in sharp contrast to the findings of Ball et al. (2008), where these country factors do not appear to explain much the variation in the timeliness of loss recognition in the different countries. To examine the relationship between capital markets development and reporting quality, we can look at the variables *MktCap_GDP*, *Ln(Firms_Pop)* and *Bond_GDP*. The fact that the first two variables are both insignificant in columns (3), (4) and (5) means that the results do not support the shareholder demand hypothesis. With respect to the debtholder demand view, the size of the bond market relative to GDP is significant in only one model (where investor protection is also considered). The evidence for the theory that debt markets are a key determinant of conservatism is therefore rather limited based on this analysis – again not consistent with the central result of Ball et al. (2008).

Finally, Table 4.7 shows the results of the regression model per equation (7) where the objective is to assess how much country-level factors could explain the incremental conservatism effect related to a fundraising event. The dependent variable is thus the coefficient $\alpha_{11}$ on the variable *dDeal*dNegCFO*CFO*, as reported in Table 4, in each period of the five-year time window around an equity or debt offering. Note that although only the results of the model with *RiskExp* are reported, performing the same regression with the two other legal enforcement

**Table 4.7: Relation between incremental effect of deals on conservatism and country-level factors**

| | (1) t+2 | (2) t+1 | (3) t0 | (4) t-1 | (5) t-2 | (6) t+2 | (7) t+1 | (8) t0 | (9) t-1 | (10) t-2 |
|---|---|---|---|---|---|---|---|---|---|---|
| VARIABLES | Equity $\alpha_{11}$ | Equity $\alpha_{11}$ | Equity $\alpha_{11}$ | Equity $\alpha_{11}$ | Equity $\alpha_{11}$ | Debt $\alpha_{11}$ | Debt $\alpha_{11}$ | Debt $\alpha_{11}$ | Debt $\alpha_{11}$ | Debt $\alpha_{11}$ |
| dBritish | -0.0913 | -0.528 | -1.099 | -2.374* | -2.836*** | 5.315 | 3.239 | 0.409 | -1.633 | 5.392** |
| | (0.910) | (1.134) | (1.357) | (1.189) | (0.991) | (4.678) | (5.095) | (2.456) | (1.189) | (2.224) |
| dFrench | 0.0403 | -1.502* | -1.399 | -3.105*** | -1.871** | 3.461 | 11.06 | -1.071 | -0.945 | 3.573 |
| | (0.846) | (0.826) | (1.195) | (1.082) | (0.743) | (3.955) | (6.628) | (2.300) | (1.223) | (2.431) |
| dScandinavian | -1.544* | -1.281 | -1.461 | -1.955* | -0.747 | 0.961 | 0.416 | -1.773 | -0.830 | 5.156* |
| | (0.839) | (1.335) | (1.207) | (1.013) | (1.100) | (4.990) | (4.363) | (2.243) | (2.247) | (2.447) |
| GDPCapGr | 0.0205 | 0.385** | 0.0929 | 0.0594 | 0.0955 | -1.803** | -1.150 | -0.967** | -0.383 | -0.446 |
| | (0.169) | (0.185) | (0.186) | (0.197) | (0.229) | (0.717) | (1.047) | (0.389) | (0.286) | (0.409) |
| MktCap_GDP | -0.543 | -0.237 | -0.739 | -0.176 | -0.332 | -0.820 | -1.919 | -0.698 | 0.448 | 0.561 |
| | (0.384) | (0.533) | (0.434) | (0.532) | (0.456) | (1.835) | (2.542) | (0.730) | (1.130) | (1.064) |
| Ln(Firms_Pop) | -0.242 | -0.0905 | 0.155 | 0.115 | -0.496 | 0.187 | 1.773 | -0.161 | -0.715 | -0.640 |
| | (0.353) | (0.282) | (0.254) | (0.517) | (0.473) | (1.800) | (2.282) | (0.948) | (0.897) | (1.015) |
| Bond_GDP | 1.156 | 1.916* | 1.061 | 0.799 | 0.761 | -1.627 | -6.298 | -2.448 | -0.0788 | 1.515 |
| | (0.804) | (1.106) | (0.949) | (0.975) | (0.909) | (3.381) | (3.710) | (2.180) | (1.632) | (1.659) |
| Creditor | -0.419* | -0.410 | 0.190 | -0.0647 | 0.422 | 1.210 | 1.509 | 0.503 | 0.0558 | 1.564** |
| | (0.237) | (0.249) | (0.230) | (0.286) | (0.297) | (1.396) | (1.602) | (0.542) | (0.435) | (0.710) |
| PriEnforce | 0.462 | 1.560 | 1.103 | 0.331 | 1.239 | 3.967 | 10.47 | 0.442 | 1.864 | 0.437 |
| | (1.825) | (2.390) | (2.277) | (2.171) | (1.625) | (5.275) | (8.868) | (2.610) | (2.647) | (3.596) |
| PubEnforce | -0.708 | 0.380 | 0.0515 | 0.806 | 1.551 | -5.839 | -7.114 | 1.234 | 4.354* | -4.646 |
| | (1.168) | (1.237) | (1.608) | (1.368) | (1.429) | (7.745) | (8.079) | (2.819) | (2.053) | (3.760) |
| RiskExp | 0.538** | -0.138 | -0.103 | -0.564* | 0.127 | 0.632 | 2.931* | 0.896 | 0.110 | -0.861 |
| | (0.224) | (0.295) | (0.258) | (0.327) | (0.296) | (1.279) | (1.561) | (0.545) | (0.491) | (0.691) |
| Constant | -3.115 | 0.245 | 0.724 | 6.338** | -0.252 | -4.423 | -31.68* | -4.382 | -1.962 | 3.698 |
| | (2.020) | (2.522) | (2.532) | (2.615) | (2.697) | (10.52) | (16.63) | (3.915) | (4.452) | (6.314) |
| Observations | 36 | 36 | 36 | 36 | 36 | 23 | 25 | 23 | 26 | 25 |
| Adjusted R-squared | 26.4% | 16.5% | 2.5% | 6.0% | 15.8% | -1.1% | -1.3% | 9.9% | -17.4% | 25.0% |

Notes: OLS regression model with robust standard errors, where the dependent variables are the coefficients on the incremental effect of deals on conservatism from the firm-level regressions (i.e. $\alpha_{11}$), scaled by their absolute standard errors. Explanatory variables are country characteristics. *dBritish*, *dFrench* and *dScandinavian* are indicator variables denoting whether a country has English common law, French civil law or Scandinavian civil law legal tradition. If these dummy variables are zero, the country has a German civil law origin. Details and sources of the other explanatory variables are provided in Table 4.2. Note that while the table above shows results of the model with only one legal enforcement variable (*RiskExp*),



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the results would largely remain the same if the other two measures were used (i.e. *RuleLaw* and *Corruption*). Figures shown are slope coefficients and within brackets are standard errors that are heteroscedasticity-consistent.



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variables would yield similar conclusions (not tabulated). The main outcome of this analysis is that, controlling for the level of market development and protection of investor rights, countries with a German legal origin appear to show the highest level of incremental conservatism following equity issues. This is evidenced in the significantly positive coefficient of the intercept in column (4), compared to the coefficients of the other legal tradition dummy variables in period *t-1* and *t-2* that are negative and significant. While the effect is weaker in Scandinavian origin countries, it may be explained by the already strong main conservatism effects of the Scandinavian legal tradition (as previously shown in Table 4.6). After the German origin countries, the post-deal incremental timeliness of loss recognition due to seasoned equity offerings is observed in the data, in descending order, in Scandinavian, English and French origin countries. Next, we look at the debt results in columns (6) to (10). In contrast to the analysis based on the larger equity sample set, there appears to be no clear relationship between the aggregate incremental conservatism associated with debt deals (as reported in Table 4.4) and the institutional factors of the countries in which the issuers are located.

## 4.4 Robustness checks

The Ball and Shivakumar model is used in this research because it is theoretically sound and does not rely on share prices – which are affected by equity issues – as a proxy for economic losses. There is another conservatism model that is applicable for the same reason, i.e. a modified Basu (1997) model, which is based on the prediction that negative earnings changes would have a greater tendency to reverse than positive earnings. The rationale is similar to the accrual-based framework. Any bad news reflected in current earnings will appear as a transitory shock (hence will reverse), whereas the effects of positive news will be spread over earnings in the successive periods as anticipated gains are realized. Details on

the persistence of change in earnings conditional on earnings news can be found in section 3.4.3in Chapter 3 of this dissertation.

The outcomes of these models are presented in Appendix D (Tables IA4.1 and IA4.2). In case of conditional conservatism, negative earnings changes would reverse more timely than positive earnings changes and the coefficient $\alpha 3$ in equation 4 would be negative and significant. Table 4.8 provides evidence, based on the alternative Basu (1977) model, for conservative reporting by companies in the majority of the countries in the sample with Luxembourg being the only economy with less timeliness of economic loss recognition (i.e. positive coefficient). This finding is, however, only partly consistent with the main results in Table 4.3, as just 14 out of 45 countries show the same reporting property by both measures of conservatism. Notably the US is the sole English legal origin country with consistent results, while those with German legal tradition appear to be in much greater alignment.

The same conclusion applies to the results of the alternative Basu models where the deal interaction terms are included. The coefficient of interest here is $\alpha 7$ in equation (5), i.e. the coefficient on the variable $dDeal * dNeg\Delta IB_{it-1} * \Delta IB_{it-1}$. In models (1) to (5) in Table 4.9, incremental conservatism is observed in the US and most German legal origin countries whereas the rest show no clear patterns. In terms of the impact of debt issues on reporting behavior, the generally weak effects of the Ball and Shivakumar models are also the case here, as shown in models (6) to (10) in Table 4.9. The positive incremental conservatism in the UK and Australia and negative incremental conservatism in German origin countries are, however, no longer observed when applying the alternative Basu measure of timeliness of loss recognition. Nevertheless, a key consideration in interpreting these results is that the explanatory power of the alternative Basu models is generally much weaker (R-squared statistic for most countries is below 10% in the main models and lower yet in the models with deals) than the Ball and

Shivakumar regressions. This strengthens the case for the latter to be used as the primary model in this analysis.

## 4.5 Conclusion

I set out to address two research questions that are relevant in the fields of accounting conservatism as well as corporate finance. The first relates to how the debtholders' demand and shareholders' demand for conservative reporting differ internationally. The second is whether variations in conservatism across the world can be explained by institutional and market factors. In investigating into the relative importance of the debtholders' and equity holders' demand, I am motivated by the fact that these are two conflicting theories that provide a rationale for conditional conservatism in contracting literature, both of which have found empirical support. The debtholder demand view focuses on the role of conservatism in enhancing debt contracting efficiency. A timely recognition of losses benefits the lenders by triggering ex-post violations of debt covenants in a timely manner. This allows them to more rapidly employ their decision rights, facilitates effective monitoring and reduces deadweight agency costs. From the perspective of shareholders, conservatism serves as a governance mechanism that helps resolve the information asymmetry between investors and issuing firms by reducing the ability of managers to manipulate and overstate financial performance.

This research is carried out based on financial and deals data of companies in 45 countries during the period 1987 – 2015. While the setup of the study is similar to Ball et al. (2008), there are a few important differences. One is that the measure of conservatism applied here follows the Ball and Shivakumar (2005) accruals-based model while Ball et al. (2008) adopt the Basu (1997) model in which economic losses are proxied by share price returns. Furthermore, the debt and equity demand in this paper is examined at the firm level by directly observing

the fundraising activities of the companies in the sample; the Ball et al. (2008) study, on the other hand, measures the demand of each investor type on an aggregate basis and refers to the size of the respective markets (i.e. debt and equity) in each country. The other distinguishing characteristic of this paper is that the underlying data cover a much longer timespan than Ball et al. (2008), which provides additional insights not only in terms of the timing of conservatism relative to deals (i.e. in the years leading up to the transaction or in the following years) but also how debt and equity funding affects firms' accounting choices over time, especially around the global financing crisis when the contracting benefits would likely be intensified. It is important to note also that the use of an extensive dataset such as this is itself a contribution to the existing literature where the majority of the conservatism research has been conducted based on the US data. Insights gained from the analysis of cross-country variation in the demand for conservatism is thus a relevant topic.

Based on the pooled regressions per country, there are indeed variations in the reporting quality of corporates around the world. Losses are generally recognized in accruals more timely than gains, especially in the more advanced economies, while companies in the developing countries exhibit less conservative reporting. When deal interaction variables are added to the base regression model, the results provide empirical support for the shareholders' demand view in a number of countries – i.e. the US, Italy, Vietnam and German legal origin countries – in which firms exercise more conservatism in their reporting behavior in the years around equity issues. It should be mentioned as well that seasoned equity offerings are found to be associated with less timely loss recognition in a few countries. With respect to the correlation between conservatism and debt deals, the absence of significant results in most countries suggests that the debtholders' demand for conservatism generally does not have a meaningful impact on firms' reporting. This could be explained by the fact that debt issuers

generally have strong cash flows, which lower the importance of the contracting benefits provided by conservatism. There are only two clear cases of increased conservatism around debt financing, i.e. Australia and the UK, where asymmetrical timeliness of loss recognition is observed mostly in the years leading up to the issues; in German legal origin countries, Singapore, Malaysia and Chile, debt issuers appear to recognize losses less timely than they do gains. Interestingly, the results of this paper are in contrast to those in the Ball et al. (2008) study, which finds that conservatism is driven by debt market demand only.

Breaking the data down by timeline into four different sub-periods provides several additional insights not previously available in prior research. First, companies in only 26 out of 45 countries in the sample display consistent levels of conservatism over time, which indicate temporal effects in the data, which are driven by the financial crisis. Firms in Hong Kong, Argentina and Egypt, for example, report less conservatively during the 2007 – 2009 period, while no conservatism is detected from the regressions spanning the entire timeline. Furthermore, asymmetrical timeliness of loss recognition in Ireland, Italy and Austria (among others) disappears during the crisis years, even though firms in those countries do report more conservatively in the periods before and after. Similar observations can be made in Thailand and Peru, where firms exhibit less conservatism in the pre- and post-crisis periods, but not during the economic downturn itself. Meanwhile, in some other nations, conservative reporting is in effect only in certain sub-periods. The general conclusion in that the study of firms' reporting behaviors is certainly a dynamic field; indeed the results of this research demonstrate that there is a great variation in conditional conservatism (or the lack thereof) both across countries as well as through time.

The final analysis in the firm-level regressions focuses on the impact of capital structure changes on conservatism in the different sub-periods. With regards to the equity issues, as with the main effects, the results show different

relationships in the different countries. American firms, for example, appear to report losses more timely than gains in the years leading up to equity offerings during the crisis as well as the period thereafter. This pre-deal conservatism, however, is not captured prior to the credit crunch. One other key finding is firms that raise equity in the German legal origin countries generally begin to apply more conservative reporting, compared to non-issuers, after the onset of the crisis. The relationships between equity deals and incremental conservatism are, however, less clear in countries with the other legal traditions. Similarly, just as there are not many significant or clear results concerning the overall association between incremental conservatism and debt issues, so too are the temporal effects of debt deals found to be mixed and relatively weak. In Australia and the UK, there is some support for the debtholder demand view during the crisis as well as the post-crisis period. The incremental conservatism caused by debt deals could also change direction, as seen by the results in France (increased conservatism by debt issuers during the crisis but decreased conservatism in the following years). Finally, debt issuers in the German origin countries (apart from China) are found to report less conservatively than non-issuers during the recent economic downturn as well as the post-crisis period.

In the second-stage regression analysis, I utilize the weighted least square approach to assess the extent to which the aggregate conservatism observed in each economy can be explained by the institutional and market factors of the various countries. The independent variables are sourced from, or based on, La Porta et al. (1997, 1998) in line with previous works that study conservatism in an international context. The first key result here is that conditional conservatism is significantly lower for countries with Scandinavian legal origin, GDP per capital growth and creditor rights and higher with the level of investor protection. This observation supports the view that strong creditor rights reduce the demand for conservative reporting practice (i.e. substitution effect), while timeliness of loss

recognition is common in countries that offer good protection of investor rights. With respect to the effect of shareholders' and debtholders' demand on conservatism, the regression results do not provide evidence for the former whereas the latter is supported to a limited extent (the size of the bond market relative to GDP is significant in only one out of three models where investor right protection variables are included). Interestingly, the aforementioned results are not consistent the main results of Ball et al. (2008), i.e. debt market demand drives conditional conservatism, Scandinavian and English legal origin countries are associated with the greater timeliness of loss recognition (relative to gains), and the protection of creditor and investor rights does not explain much of the variation in conservatism in the different countries.

The objective of the next and final analysis is to investigate the relationship between incremental conservatism due to deals and the institutional factors of the countries in which the issuers are based. The main finding there is that German legal origin countries are associated with the highest level of incremental conservatism following equity issues, followed by those with the Scandinavian, English and French legal traditions. In line with the previous analyses, no clear patterns are captured in the debt regressions.

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# Appendix D - Additional results referred to in Chapter 4

## Table IA4.1: Firm-level conservatism main effects (alternative measure)

| Country | dNegΔIB/TA $_{t-1}$ (lagged) | ΔIB/TA $_{t-1}$ (lagged) | dNeg[ΔIB/TA$_{t-1}$(lagged)] X ΔIB/TA$_{t-1}$(lagged) | # Obs | R-squared |
|---|---|---|---|---|---|
| *English legal origin countries* | | | | | |
| Australia | 0.135*** | -0.0832*** | 0.0315 | 21,856 | 0.015 |
| | (0.0172) | (0.0229) | (0.0446) | | |
| United Kingdom | 0.0239*** | -0.0707* | -0.0145 | 27,604 | 0.014 |
| | (0.00688) | (0.0410) | (0.0652) | | |
| Hong Kong | -0.0147*** | -0.000832 | -0.617*** | 2,355 | 0.093 |
| | (0.00501) | (0.0472) | (0.102) | | |
| India | -0.0147*** | -0.0528*** | -0.386*** | 40,396 | 0.049 |
| | (0.00170) | (0.0158) | (0.0350) | | |
| Ireland | 0.0392 | -0.00587 | 0.241* | 1,239 | 0.047 |
| | (0.0262) | (0.0629) | (0.130) | | |
| Israel | 0.00126 | -0.269* | 0.212 | 3,496 | 0.027 |
| | (0.0145) | (0.157) | (0.178) | | |
| Sri Lanka | -0.00725 | -0.166*** | -0.126 | 1,847 | 0.039 |
| | (0.00817) | (0.0589) | (0.128) | | |
| Malaysia | -0.0174*** | -0.00157 | -0.708*** | 13,235 | 0.101 |
| | (0.00309) | (0.0331) | (0.0877) | | |
| New Zealand | 0.00939 | -0.0159 | -0.119 | 1,918 | 0.027 |
| | (0.00825) | (0.0331) | (0.150) | | |
| Singapore | -0.0267*** | -0.0264 | -0.724*** | 8,428 | 0.110 |
| | (0.00363) | (0.0312) | (0.0917) | | |
| Thailand | -0.0106*** | -0.110** | -0.397*** | 6,602 | 0.072 |
| | (0.00312) | (0.0438) | (0.0785) | | |
| United States | -0.00917*** | -0.0398* | -0.360*** | 136,41 | 0.050 |
| | (0.00147) | (0.0238) | (0.0564) | | |
| South Africa | -0.0141* | -0.108** | -0.397** | 4,074 | 0.071 |
| | (0.00780) | (0.0457) | (0.158) | | |
| *French legal origin countries* | | | | | |
| Argentina | -0.0397*** | -0.244** | -0.347*** | 1,021 | 0.153 |
| | (0.0134) | (0.105) | (0.129) | | |
| Belgium | -0.00162 | -0.0259 | -0.264** | 1,917 | 0.036 |
| | (0.00649) | (0.0666) | (0.116) | | |
| Brazil | 0.00261 | -0.165** | -0.122 | 4,828 | 0.061 |
| | (0.00750) | (0.0735) | (0.121) | | |
| Chile | -0.0126*** | -0.132* | -0.415*** | 2,503 | 0.083 |
| | (0.00412) | (0.0724) | (0.134) | | |
| Colombia | 0.00140 | -0.121* | -0.0642 | 447 | 0.034 |
| | (0.00545) | (0.0705) | (0.314) | | |
| Egypt | -0.00890 | -0.0347 | 0.0141 | 835 | 0.013 |
| | (0.00690) | (0.152) | (0.173) | | |
| Spain | -0.0177*** | -0.0815 | -0.599*** | 2,417 | 0.102 |
| | (0.00325) | (0.0655) | (0.152) | | |
| France | -0.00307 | -0.0343 | -0.281*** | 11,431 | 0.038 |
| | (0.00340) | (0.0388) | (0.0818) | | |
| Greece | -0.0131*** | -0.0149 | -0.474*** | 2,691 | 0.050 |
| | (0.00331) | (0.0389) | (0.120) | | |
| Indonesia | -0.0196*** | -0.166* | -0.334 | 4,714 | 0.080 |
| | (0.00613) | (0.0856) | (0.218) | | |
| Italy | -0.0116*** | -0.0941 | -0.294*** | 3,923 | 0.041 |
| | (0.00291) | (0.0672) | (0.0843) | | |
| Luxembourg | 0.0197* | -0.212*** | 0.235** | 522 | 0.049 |
| | (0.0100) | (0.0300) | (0.117) | | |

| Country | dNegΔIB/TA $_{t-1}$ (lagged) | ΔIB/TA $_{t-1}$ (lagged) | dNeg[ΔIB/TA$_{t-1}$(lagged)] X ΔIB/TA$_{t-1}$(lagged) | # Obs | R-squared |
|---|---|---|---|---|---|
| Mexico | \-0.00892** | -0.182** | -0.230* | 1,764 | 0.071 |
| | (0.00420) | (0.0900) | (0.132) | | |
| Netherlands | -0.0113** | -0.0214 | -0.525*** | 2,986 | 0.094 |
| | (0.00517) | (0.0760) | (0.140) | | |
| Peru | -0.000722 | -0.0388 | -0.214 | 1,186 | 0.021 |
| | (0.00669) | (0.0937) | (0.155) | | |
| Philippines | 0.0149 | 0.0333 | -0.417*** | 2,494 | 0.031 |
| | (0.0116) | (0.0856) | (0.156) | | |
| Portugal | -0.0127** | -0.172 | -0.407*** | 854 | 0.116 |
| | (0.00517) | (0.110) | (0.154) | | |
| Russia | -0.00784 | -0.0378 | -0.300*** | 2,387 | 0.023 |
| | (0.00666) | (0.0438) | (0.0935) | | |
| Turkey | 0.00954 | -0.0797 | -0.271*** | 2,855 | 0.061 |
| | (0.00736) | (0.0823) | (0.104) | | |
| Vietnam | -0.0144*** | 0.0374 | -0.426*** | 2,555 | 0.027 |
| | (0.00360) | (0.0593) | (0.145) | | |
| *German legal origin countries* | | | | | |
| Austria | -0.0138*** | 0.0447 | -0.844*** | 1,461 | 0.152 |
| | (0.00531) | (0.102) | (0.148) | | |
| Switzerland | -0.0113*** | -0.0412 | -0.460*** | 3,855 | 0.079 |
| | (0.00388) | (0.0624) | (0.141) | | |
| China | -0.0213*** | 0.0711*** | -0.811*** | 33,363 | 0.089 |
| | (0.00192) | (0.0270) | (0.0570) | | |
| Germany | -0.00812*** | -0.0239 | -0.403*** | 11,999 | 0.061 |
| | (0.00308) | (0.0418) | (0.131) | | |
| Japan | -0.00677*** | -0.0372 | -0.592*** | 58,764 | 0.114 |
| | (0.000779) | (0.0257) | (0.0503) | | |
| South Korea | -0.00922*** | -0.165*** | -0.368*** | 9,614 | 0.101 |
| | (0.00279) | (0.0360) | (0.0748) | | |
| Poland | -0.0187** | -0.0254 | -0.517*** | 5,250 | 0.073 |
| | (0.00854) | (0.0197) | (0.105) | | |
| Taiwan | -0.00880*** | -0.00734 | -0.451*** | 17,345 | 0.045 |
| | (0.00132) | (0.0356) | (0.0703) | | |
| *Scandinavian legal origin countries* | | | | | |
| Denmark | -0.0181*** | -0.181** | -0.227 | 2,445 | 0.062 |
| | (0.00626) | (0.0906) | (0.139) | | |
| Finland | 3.88e-05 | -0.0327 | -0.291** | 2,241 | 0.049 |
| | (0.00540) | (0.0614) | (0.136) | | |
| Norway | 0.00883 | -0.0360 | -0.153 | 2,983 | 0.023 |
| | (0.00787) | (0.0439) | (0.121) | | |
| Sweden | 0.00994 | -0.0828* | 0.0219 | 6,980 | 0.011 |
| | (0.00676) | (0.0432) | (0.0802) | | |

Notes: OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ΔIB*, which is change in income before extraordinary items. As for the independent variables, *ΔIB/TA $_{t-1}$ (lagged)* is ΔIB lagged by one year and *dNeg[ΔIB /TA $_{t-1}$ (lagged)]* is an indicator variable for negative ΔIB/TA t-1 (lagged). All variables are deflated by beginning total assets, except the indicator variables. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

## Table IA4.2: Firm-level relation between conservatism and deals (alternative measure)

**Panel A: Equity results**

| | Coeff and SE on dNeg[ΔIB/TA $_{t-1}$] X ΔIB/TA $_{t-1}$ X dEquity | | | | |
|---|---|---|---|---|---|
| | t+2 | t+1 | t0 | t-1 | t-2 |
| Country | (1) | (2) | (3) | (4) | (5) |
| *English legal origin countries* | | | | | |
| Australia | 0.0196 | -0.120* | 0.0117 | -0.0261 | -0.184*** |
| | (0.0455) | (0.0680) | (0.0431) | (0.0363) | (0.0535) |
| United Kingdom | 0.0706 | 0.105 | -0.0948 | -0.0745 | -0.0872 |
| | (0.0848) | (0.0871) | (0.0635) | (0.0970) | (0.105) |
| Hong Kong | -0.0841 | -0.378* | -0.118 | 0.272** | 0.0791 |
| | (0.250) | (0.220) | (0.149) | (0.116) | (0.258) |
| India | 0.0103 | -0.0814 | -0.0899 | 0.0474 | 0.0811 |
| | (0.135) | (0.142) | (0.139) | (0.123) | (0.0900) |
| Ireland | -0.0858 | 0.00595 | -0.487* | -0.505 | -0.949* |
| | (0.190) | (0.202) | (0.280) | | (0.532) |
| Israel | 0.613 | -0.290 | -0.648* | 0.214 | 0.204 |
| | (0.616) | (0.203) | (0.381) | (0.355) | (0.393) |
| Sri Lanka | -0.705 | -0.119 | 0.869** | 0.526 | -0.0379 |
| | (0.564) | (0.656) | (0.397) | (0.531) | (0.367) |
| Malaysia | 0.212 | 0.124 | 0.512*** | 0.196 | -0.0757 |
| | (0.192) | (0.114) | (0.169) | (0.187) | (0.194) |
| New Zealand | 0.0435 | 0.602** | 0.319 | 0.225 | 0.442* |
| | (0.194) | (0.148) | (0.230) | (0.174) | (0.232) |
| Singapore | -0.235 | -0.157 | -0.327 | -0.259 | 0.0921 |
| | (0.165) | (0.184) | (0.241) | (0.192) | (0.258) |
| Thailand | 0.0846 | 0.248 | -0.0946 | 0.0470 | -0.300 |
| | (0.135) | (0.172) | (0.141) | (0.171) | (0.265) |
| South Africa | 0.665** | 0.595** | 0.666 | 0.0186 | 0.325 |
| | (0.332) | (0.212) | (0.461) | (0.392) | (0.306) |
| United States | 0.203*** | 0.126 | 0.350*** | 0.429*** | 0.174*** |
| | (0.0634) | (0.0850) | (0.0767) | (0.0472) | (0.0663) |
| *French legal origin countries* | | | | | |
| Argentina | -0.760** | 0.176 | -0.819 | 0.132 | -0.263 |
| | (0.373) | (0.281) | (0.553) | (0.375) | (0.510) |
| Belgium | -0.0688 | 0.0758 | 0.613 | -0.407 | -0.286 |
| | (0.366) | (0.159) | (0.403) | (0.309) | (0.433) |
| Brazil | -0.153 | -0.266 | -0.564*** | -0.476** | -0.330 |
| | (0.255) | (0.232) | (0.201) | (0.189) | (0.213) |
| Chile | -0.599** | 0.303 | 0.0448 | -0.405 | 0.242 |
| | (0.266) | (0.261) | (0.219) | (0.264) | (0.320) |
| Colombia | 2.055*** | 1.143** | 0.675 | 0.270* | 0.625 |
| | (0.139) | (0.343) | (0.438) | (0.154) | (0.476) |
| Egypt | -1.855** | -0.303 | 0.177 | -0.0130 | -1.232 |
| | (0.772) | (0.338) | (0.451) | (0.608) | (0.836) |
| Spain | 0.524** | -0.0337 | -0.633 | -0.188 | -0.454* |
| | (0.261) | (0.375) | (0.548) | (0.501) | (0.264) |
| France | 0.250* | 0.246 | 0.188 | 0.0978 | -0.122 |
| | (0.150) | (0.194) | (0.123) | (0.161) | (0.192) |
| Greece | 0.521 | -0.297 | 0.203 | 1.121*** | 0.471 |
| | (0.442) | (0.502) | (0.449) | (0.321) | (0.295) |
| Indonesia | 0.234 | -0.317 | 0.261 | 0.407 | 0.410 |
| | (0.273) | (0.369) | (0.221) | (0.263) | (0.255) |

| | Coeff and SE on dNeg[ΔIB/TA $_{t-1}$] X ΔIB/TA $_{t-1}$ X dEquity | | | | |
|---|---|---|---|---|---|
| | t+2 | t+1 | t0 | t-1 | t-2 |
| Country | (1) | (2) | (3) | (4) | (5) |
| Italy | 0.227 | -0.135 | -0.268 | 0.0645 | 0.135 |
| | (0.159) | (0.223) | (0.426) | (0.340) | (0.184) |
| Luxembourg | 0.336* | 0.403 | 0.530 | 0.246 | -1.094* |
| | (0.194) | (0.269) | (0.385) | (0.233) | (0.596) |
| Mexico | 0.211 | -0.330* | 0.114 | -0.147 | 0.0158 |
| | (0.238) | (0.173) | (0.191) | (0.326) | (0.241) |
| Netherlands | 0.585** | 0.773 | 0.672* | 0.202 | -0.107 |
| | (0.229) | (0.470) | (0.384) | (0.394) | (0.300) |
| Peru | 0.0689 | -1.249** | -0.694*** | -0.470** | 0.206 |
| | (0.134) | (0.531) | (0.210) | (0.221) | (0.624) |
| Philippines | 0.717*** | 0.367 | -0.276 | 0.0972 | 0.198 |
| | (0.208) | (0.413) | (0.394) | (0.281) | (0.579) |
| Portugal | 0.200 | 1.065** | 0.869 | 0.953*** | -0.182 |
| | (0.275) | (0.340) | (0.728) | (0.310) | (0.240) |
| Russia | -0.287 | -0.0420 | -0.00144 | 0.0541 | -0.534 |
| | (0.243) | (0.237) | (0.136) | (0.201) | (0.369) |
| Turkey | 0.0754 | 0.148 | -0.229 | -0.0858 | 0.0147 |
| | (0.478) | (0.163) | (0.162) | (0.397) | (0.283) |
| Vietnam | 0.196 | 0.0670 | -0.0483 | 0.212 | -0.279 |
| | (0.671) | (0.332) | (0.257) | (0.347) | (0.345) |
| *German legal origin countries* | | | | | |
| Austria | -0.318 | -0.515 | -0.792*** | -0.674*** | -0.175 |
| | (0.402) | (0.346) | (0.185) | (0.254) | (0.257) |
| Switzerland | 0.510*** | 0.208 | -0.221 | -0.0584 | -1.268*** |
| | (0.172) | (0.449) | (0.262) | (0.315) | (0.227) |
| China | 0.279** | 0.332** | 0.0373 | 0.355 | 0.393* |
| | (0.109) | (0.143) | (0.189) | (0.234) | (0.216) |
| Germany | -0.170 | 0.219 | 0.593*** | 0.473** | 0.204 |
| | (0.201) | (0.244) | (0.201) | (0.193) | (0.226) |
| Japan | 0.126 | 0.142 | 0.000122 | -0.134 | 0.156** |
| | (0.0874) | (0.104) | (0.0874) | (0.0920) | (0.0641) |
| South Korea | -0.139 | 0.151 | -0.166 | -0.0864 | -0.0452 |
| | (0.149) | (0.197) | (0.105) | (0.110) | (0.123) |
| Poland | 0.147 | 1.108** | 0.695** | 0.330 | 0.598*** |
| | (0.196) | (0.359) | (0.298) | (0.216) | (0.105) |
| Taiwan | 0.164** | 0.116 | -0.158 | -0.0155 | 0.277** |
| | (0.0745) | (0.130) | (0.116) | (0.114) | (0.114) |
| *Scandinavian legal origin countries* | | | | | |
| Denmark | -0.134 | 0.113 | -0.275 | -0.0742 | -0.696** |
| | (0.339) | (0.283) | (0.327) | (0.325) | (0.294) |
| Finland | 0.123 | -0.359* | 0.142 | 0.134 | -0.309 |
| | (0.264) | (0.199) | (0.245) | (0.215) | (0.294) |
| Norway | 0.0711 | 0.379 | 0.502*** | 0.290 | -0.107 |
| | (0.305) | (0.261) | (0.192) | (0.205) | (0.341) |
| Sweden | 0.120 | 0.105 | 0.237* | -0.265** | -0.292 |
| | (0.140) | (0.126) | (0.133) | (0.129) | (0.204) |

**Panel B: Debt results**

| | Coeff and SE on dNeg[ΔIB/TA $_{t-1}$] X ΔIB/TA $_{t-1}$ X dDebt | | | | |
|---|---|---|---|---|---|
| | t+2 | t+1 | t0 | t-1 | t-2 |
| Country | (1) | (2) | (3) | (4) | (5) |
| *English legal origin countries* | | | | | |
| Australia | -0.0499 | 1.397 | -2.894*** | -0.658 | -0.250 |
| | (0.0671) | (1.840) | (0.400) | (0.693) | (0.443) |
| United Kingdom | - | -0.346* | 0.388 | -0.369 | -0.833*** |
| | (0.162) | (0.181) | (0.412) | (0.286) | (0.268) |
| Hong Kong | -0.263 | -0.578 | 0.692*** | 1.227*** | 0.221 |
| | (0.608) | (0.361) | (0.200) | (0.358) | (0.323) |
| India | -0.202 | 0.00287 | -0.399 | -0.259 | 0.505** |
| | (0.171) | (0.167) | (0.389) | (0.255) | (0.233) |
| Ireland | -0.0297 | 0.366 | -0.367 | 2.256*** | 0.261 |
| | (0.335) | (0.249) | (0.236) | (0.655) | (0.591) |
| Israel | -0.914** | 4.356** | -0.605 | 1.526 | -1.691*** |
| | (0.456) | (0.223) | (1.708) | (0.991) | (0.615) |
| Sri Lanka | - | - | - | - | - |
| Malaysia | -0.407** | 0.282 | -0.182 | 0.164 | 0.531*** |
| | (0.200) | (0.227) | (0.353) | (0.241) | (0.202) |
| New Zealand | -0.112 | 0.00826 | 0.937** | 0.193 | 0.658 |
| | (0.310) | (0.411) | (0.433) | (0.367) | (0.432) |
| Singapore | -0.214 | 0.275 | 0.336 | 0.595*** | -0.652** |
| | (0.177) | (0.360) | (0.291) | (0.231) | (0.255) |
| Thailand | 0.473 | 0.550** | 0.543** | -0.0819 | -0.0773 |
| | (0.346) | (0.214) | (0.212) | (0.327) | (0.222) |
| South Africa | -0.0878 | -0.190* | 0.219 | 0.211** | -0.0692 |
| | (0.110) | (0.110) | (0.150) | (0.0942) | (0.123) |
| United States | 1.070 | 0.123 | -0.559 | 0.465 | 1.155*** |
| | (0.657) | (0.152) | (0.666) | (0.971) | (0.181) |
| *French legal origin countries* | | | | | |
| Argentina | -0.0877 | -0.264 | 0.185 | -0.0945 | -1.238** |
| | (0.244) | (0.376) | (0.398) | (0.370) | (0.520) |
| Belgium | - | - | -0.390** | 0.180 | -0.00149 |
| | (0.318) | (0.227) | (0.181) | (0.674) | (0.465) |
| Brazil | -0.341 | -0.208 | -0.497*** | -0.183 | -0.161 |
| | (0.237) | (0.211) | (0.155) | (0.286) | (0.175) |
| Chile | -0.496 | -0.151 | 0.0980 | 0.326 | -0.852* |
| | (0.555) | (0.272) | (0.528) | (0.217) | (0.438) |
| Colombia | -1.139* | 0.0276 | 0.322 | -0.524 | 0.0997 |
| | (0.657) | (0.488) | (0.568) | (0.437) | (1.169) |
| Egypt | - | - | - | - | - |
| Spain | - | -0.542 | -1.083*** | -0.175 | -0.780* |
| | (0.394) | (0.374) | (0.211) | (0.323) | (0.461) |
| France | -0.00998 | -0.426 | -0.00127 | -0.367*** | -0.348 |
| | (0.271) | (0.370) | (0.150) | (0.133) | (0.303) |
| Greece | - | 506.4** | -1.361 | 2.816** | -3.659*** |
| | (0.160) | (17.97) | (1.223) | (1.099) | (0.714) |
| Indonesia | 0.332 | - | 0.116 | 0.722*** | 0.831* |
| | (0.377) | (0.204) | (0.349) | (0.221) | (0.433) |
| Italy | 0.0562 | -0.356 | 0.0408 | 0.935*** | 0.0649 |
| | (0.265) | (0.262) | (0.154) | (0.267) | (0.322) |
| Luxembourg | - | -0.242 | -0.242 | -1.232** | -0.410 |
| | (0.212) | (0.783) | (0.558) | (0.610) | (0.460) |

| | Coeff and SE on dNeg[ΔIB/TA $_{t-1}$] X ΔIB/TA $_{t-1}$ X dDebt | | | | |
|---|---|---|---|---|---|
| | t+2 | t+1 | t0 | t-1 | t-2 |
| Country | (1) | (2) | (3) | (4) | (5) |
| Mexico | 0.210 | -0.177 | 0.108 | -0.161 | 0.0436 |
| | (0.210) | (0.200) | (0.239) | (0.306) | (0.280) |
| Netherlands | 0.141 | 1.799 | 0.991** | 0.826*** | 0.333 |
| | (0.390) | (1.362) | (0.461) | (0.187) | (0.779) |
| Peru | -0.153** | - | -0.910*** | -0.275** | 0.865** |
| | (0.0628) | (0.555) | (0.254) | (0.114) | (0.404) |
| Philippines | 0.218 | 0.237 | 0.442* | 0.442 | 1.265*** |
| | (0.165) | (0.434) | (0.263) | (0.301) | (0.380) |
| Portugal | -0.544** | 0.909** | 2.984 | -0.266 | 0.857* |
| | (0.261) | (0.284) | (2.161) | (0.434) | (0.437) |
| Russia | -0.0360 | 0.110 | -0.472* | -0.194 | -0.480 |
| | (0.460) | (0.293) | (0.282) | (0.160) | (0.467) |
| Turkey | -1.180** | 0.383 | -4.212* | -0.671 | -0.445 |
| | (0.525) | (1.494) | (2.352) | (1.442) | (0.905) |
| Vietnam | - | - | - | 1.291*** | - |
| | | | | (0.267) | |
| *German legal origin countries* | | | | | |
| Austria | -0.342* | 0.0817 | 0.0346 | 0.533 | -0.730** |
| | (0.190) | (0.279) | (0.246) | (0.602) | (0.363) |
| Switzerland | -0.339 | 0.728** | -1.476*** | -0.0278 | -0.0789 |
| | (0.380) | (0.228) | (0.423) | (0.261) | (0.270) |
| China | 0.00129 | 0.595** | 0.562*** | 0.184 | -0.146 |
| | (0.114) | (0.0689) | (0.180) | (0.166) | (0.352) |
| Germany | -0.0341 | -0.901** | 0.160 | -0.363 | 0.0277 |
| | (0.0636) | (0.427) | (0.166) | (0.221) | (0.248) |
| Japan | -0.0146 | -0.00912 | 0.0520 | 0.120 | -0.0877 |
| | (0.0901) | (0.123) | (0.114) | (0.0847) | (0.107) |
| South Korea | - | - | -0.217* | -0.325** | -0.491** |
| | (0.133) | (0.154) | (0.119) | (0.156) | (0.212) |
| Poland | 2.570** | - | 1.177*** | 0.813*** | - |
| | (1.117) | (0.411) | (0.105) | (0.232) | |
| Taiwan | 0.300 | 0.129 | 0.450 | 0.652** | 0.105 |
| | (0.290) | (0.268) | (0.387) | (0.308) | (0.192) |
| *Scandinavian legal origin countries* | | | | | |
| Denmark | -0.155 | -0.0786 | -0.107 | 0.669 | 0.919*** |
| | (0.486) | (0.587) | (0.761) | (0.662) | (0.259) |
| Finland | -0.629 | 0.199 | -0.0200 | 0.247* | 0.150 |
| | (0.451) | (0.393) | (0.256) | (0.128) | (0.251) |
| Norway | - | -0.0847 | -0.932 | -1.332** | 0.384 |
| | (0.426) | (0.163) | (1.812) | (0.621) | (0.544) |
| Sweden | -1.015** | -0.674 | 0.133 | -0.404 | -0.154 |
| | (0.405) | (0.519) | (0.280) | (0.387) | (0.514) |

Notes: OLS regressions per country with standard errors clustered at firm and year level. Constants and industry fixed effects are included but their coefficients are not shown. Results are from pooled tine-series and cross-sectional regressions of variables. The dependent variable is *ΔIB*, which is change in income before extraordinary items. As for the independent variables, *ΔIB/TA $_{t-1}$ (lagged)* is ΔIB lagged by one year, *dNeg[ΔIB /TA $_{t-1}$ (lagged)]* is an indicator variable for negative ΔIB/TA t-1 (lagged), and *dEquity (dDebt)* is an indicator variable for an equity (debt) issue during the fiscal year. All variables are deflated by beginning total assets, except the indicator variables. All variables are deflated by beginning total assets, except the indicator variables. Within brackets are standard errors that are heteroscedasticity-consistent.

# Chapter 5

# Summary

This chapter summarizes the main conclusions of the empirical analyses in the fields of finance and accounting included in this dissertation. The first study analyzes the link between the use of private leverage in concentrated ownership structures and corporate policy, specifically dividend payouts. The focus of the next two chapters is shifted to the relationship between accounting and corporate finance. In Chapter 3, we examine the demand for accounting conservatism as well as the impact of capital structure decisions on firms' reporting behavior in the United States. The study in the final chapter remains on the topic of conservative accounting but has a broader international scope.

Chapter 2 looks into dominant owners' use of leverage to finance blockholdings and investigates its relationship with dividend policy. Using panel data from France where pyramidal ownership structures are prevalent, we find that companies exposed to blockholder leverage increase their dividends in the years following the global financial crisis in 2008/2009. Meanwhile, in the pre-crisis period, we do not observe any significant difference in payout policy between firms with leveraged blockowners and others. The reluctance of block-owned companies to cut dividends even (or especially) when earnings are hit by a negative shock is driven by dominant owners' need for cash dividends to meet debt obligations in the holding. Our study provides insights into the impact of

private leverage of dominant shareholders on corporate decisions and introduces blockholder leverage as a potentially important determinant of payout policy in times of financial distress.

Chapter 3 examines the relative importance of debtholders' and shareholders' demand for conservative accounting by investigating the influence of capital structure decisions on firms' accounting choices. We use the accruals-based measure of conditional conservatism and employ large financial and deals datasets for US firms covering the period 1988 to 2013. Our results provide further support for the shareholders' demand for conservative accounting, as firms that raise equity are found to exhibit increasing conservatism in the period preceding the deals. Interestingly, in contrast to earlier findings, we do not find evidence for the debtholders' demand for conservatism. Looking further into deal types, we observe that the greater timeliness of loss recognition is driven by the demand of shareholders in the public markets. We conclude that conservative accounting serves as a signal of reliability to equity investors in order to receive more favorable deal terms in the period leading up to a fundraising event and that managers time their earnings behavior in the years leading up to an issue.

The final chapter extends the study of accounting conservatism to a global setting. For this cross-country analysis, I create an extensive dataset consisting of more than half a million firm-year observations in 45 countries over the period 1987 to 2015 – which in itself a contribution to the existing literature where the majority of the conservatism research has been US-centric. Applying the Ball and Shivakumar (2005) accruals-based conservatism model, I find variations in the reporting quality of corporates around the world with one general conclusion being that conservative accounting is generally more prevalent in advanced economies than in developing countries. When fundraising activities are considered, the results provide empirical support for the shareholders' demand view in a number of countries. Moreover, the level of conservatism displayed by companies in the

sample also is also found to change over time, especially around the financial crisis. The second part of Chapter 4 then proceeds to assess the extent to which the aggregate conservatism observed in each economy can be explained by the institutional and market factors of the various countries. I utilize the weighted least square method and find that conservatism is associated not only with the legal origin of the counties but also their institutional factors (in terms of protection of creditor rights as well as investor rights). Furthermore, the country-level analysis shows only limited support for the debt market demand for conservatism, which contradicts the main results of Ball et al. (2008).

Taken together, the empirical findings in the preceding chapters demonstrate not only certain ways in which corporate finance, corporate governance and accounting are connected, but also the relevance of their relationships to the business world. Indeed, a key message from Chapter 2 is that, when assessing a prospective investment in a public company, investors should pay attention to the ownership structure and the holding's leverage in addition to the information of the listed entity. Insights from chapter 3 and 4 enhance the understanding of firms' reporting behavior around critical corporate finance decisions and should therefore be of interest to users of financial statements. The relationships between these three fields are also dynamic, as seen from the fact that firms, managers and blockholders respond differently to the financial crisis depending on how they are controlled, how they are financed and where they operate.

# Nederlandse samenvatting (Summary in Dutch)

Dit hoofdstuk is een samenvatting van de belangrijkste conclusies van de empirische analyses in het domein van financiën en boekhouding die in dit proefschrift zijn opgenomen. In de eerste studie wordt het verband tussen het gebruik van private hefboomwerking in geconcentreerde eigendomsstructuren en het bedrijfsbeleid geanalyseerd, in het bijzonder dividenduitkeringen. In de volgende twee hoofdstukken wordt de aandacht verlegd naar de relatie tussen boekhouding en bedrijfsfinanciering. In hoofdstuk 3 onderzoeken we de vraag naar boekhoudkundig conservatisme en de impact van kapitaalstructuurbeslissingen op het rapporteringsgedrag van bedrijven in de Verenigde Staten. De studie in het laatste hoofdstuk gaat eveneens over het onderwerp van conservatieve boekhouding, maar heeft een bredere internationale reikwijdte.

Hoofdstuk 2 gaat dieper in op het gebruik van hefboomwerking door dominante eigenaren om groepsaandeelhouderschappen te financieren en onderzoekt hoe dit in verbinding staat met het dividendbeleid. Aan de hand van paneldata uit Frankrijk, waar piramidale eigendomsstructuren veel voorkomen, zien we dat de dividenden van bedrijven die te maken hebben met hefboomwerking van groepsaandeelhouders toenemen in de jaren na de wereldwijde financiële crisis in 2008/2009. Terwijl we in de periode voorafgaand aan de crisis geen merkbaar verschil zien in het uitkeringsbeleid tussen bedrijven

met als hefboom werkende groepsaandeelhouders en anderen. De terughoudendheid van bedrijven in groepsbezit om zelfs (of vooral) dividenden te beperken wanneer de winst door een negatieve schok wordt getroffen, wordt gedreven door de behoefte van dominante eigenaars aan contante dividenden om aan schuldverplichtingen in het aandeelhouderschap te voldoen. Onze studie geeft inzicht in de impact van private hefboomwerking van dominante aandeelhouders op bedrijfsbeslissingen en introduceert de hefboomwerking van groepsaandeelhouders als een potentieel belangrijke bepalende factor voor het uitkeringsbeleid in tijden van financiële onrust.

In hoofdstuk 3 wordt het relatieve belang van de vraag van debiteuren en aandeelhouders naar een conservatieve boekhouding onderzocht door de invloed van kapitaalstructuurbeslissingen op de boekhoudkundige keuzes van bedrijven te onderzoeken. We gebruiken de maatstaf van voorwaardelijk conservatisme op transactiebasis en maken gebruik van grote financiële en transactiedatasets voor Amerikaanse bedrijven voor de periode 1988 tot 2013. Onze resultaten bieden verdere ondersteuning voor de vraag van de aandeelhouders naar een conservatieve boekhouding, aangezien bedrijven die het eigen vermogen verhogen steeds conservatiever blijken te zijn in de periode voorafgaand aan de transacties. Verrassend genoeg hebben we geen bewijs gevonden voor de vraag naar conservatisme door debiteuren, in tegenstelling tot eerdere bevindingen. Als we verder kijken naar de soorten transacties, zien we dat een snellere herkenning van verliezen wordt gedreven door de vraag van aandeelhouders op de publieke markten. We concluderen dat een conservatieve boekhouding dient als een signaal van betrouwbaarheid aan aandelenbeleggers om gunstigere transactievoorwaarden te ontvangen in de periode voorafgaand aan een fondsenwervingsevenement en dat managers hun winstgedrag timen in de jaren die voorafgaan aan een problematische situatie.

Het laatste hoofdstuk vormt een uitbreiding van de studie van boekhoudkundig conservatisme naar een globale omgeving. Voor deze analyse van verschillende landen stel ik een uitgebreide dataset samen die bestaat uit meer dan een half miljoen observaties van een bedrijfsjaar in 45 landen in de periode 1987 tot 2015 – wat op zich al een bijdrage vormt aan de bestaande literatuur, waarin het merendeel van het onderzoek naar conservatisme is gericht op de VS. Bij toepassing van het Ball en Shivakumar-model (2005) voor conservatisme op transactiebasis, tref ik variaties aan in de rapportagekwaliteit van bedrijven over de hele wereld, met als algemene conclusie dat conservatieve boekhouding over het algemeen vaker voorkomt in geavanceerde economieën dan in ontwikkelingslanden. Als we kijken naar fondsenwervingsactiviteiten, bieden de resultaten in een aantal landen empirische ondersteuning voor de vraag van de aandeelhouders. Bovendien blijkt ook het conservatisme van de bedrijven in de steekproef te veranderen in de loop van de tijd, met name rond de financiële crisis. In het tweede deel van hoofdstuk 4 wordt vervolgens nagegaan in hoeverre het geaggregeerde conservatisme dat in elke economie wordt waargenomen, kan worden verklaard door de institutionele en marktfactoren van de verschillende landen. Ik gebruik de gewogen kleinste-kwadratenmethode en stel vast dat conservatisme niet alleen verband houdt met de juridische oorsprong van de landen, maar ook met hun institutionele factoren (op het gebied van bescherming van de rechten van de schuldeisers, maar ook de rechten van de investeerders). Bovendien blijkt uit de analyse op landelijk niveau dat de vraag naar conservatisme op de schuldmarkt slechts beperkt wordt ondersteund, wat indruist tegen de belangrijkste resultaten van Ball et al. (2008).

De empirische bevindingen in de voorgaande hoofdstukken laten niet alleen zien hoe bedrijfsfinanciering, bedrijfsbestuur en boekhouding met elkaar verbonden zijn, maar ook hoe relevant hun onderlinge relaties zijn voor het bedrijfsleven. Een belangrijke boodschap uit hoofdstuk 2 is dat beleggers bij de

beoordeling van een toekomstige investering in een beursgenoteerd bedrijf niet alleen moeten letten op de informatie van de beursgenoteerde entiteit, maar ook op de eigendomsstructuur en het hefboomeffect van het bedrijf. De bevindingen uit hoofdstuk 3 en 4 vergroten het inzicht in het rapporteringsgedrag van bedrijven omtrent kritische bedrijfsfinancieringsbeslissingen en zouden daarom van belang moeten zijn voor gebruikers van jaarrekeningen. De relaties tussen deze drie gebieden zijn daarnaast ook dynamisch, zoals blijkt uit het feit dat bedrijven, managers en groepsaandeelhouders verschillend reageren op de financiële crisis, afhankelijk van hoe ze worden gecontroleerd en gefinancierd en op welk terrein ze actief zijn.

# About the author

Sereeparp Anantavrasilp was born on 22 January 1983 in Bangkok, Thailand. In 1998, he received an ASEAN Secondary Scholarship, granted by the Singaporean Ministry of Education, to study at Anglo-Chinese School (Independent), where he completed his GCSE 'O' Level Examination. He went on to study Finance at the University of Notre Dame (Indiana, the United States) and obtained a Bachelor in Business Administration (Magna Cum Laude) in 2005. After a brief career in investment banking in Thailand, Sereeparp continued his education in the Netherlands after being awarded a Graduate Scholarship by the Erasmus Research Institute of Management (ERIM). He graduated from the Rotterdam School of Management, Erasmus University, with an ERIM Master of Philosophy in Business Research – Finance (Cum Laude) in 2007. During his Master study, he worked as a research assistant for Prof. Abe de Jong on the International Corporate Governance Research Project.

He subsequently pursued a career in corporate finance in the Netherlands, first at the Group Finance Bank of the ING Group and shortly after in the Valuation, Modelling & Economics team at EY Strategy and Transactions (SaT). As he still held a strong passion for research, however, he rejoined the research project team and started working on his PhD under the supervision of Prof. Abe de Jong and Prof. Peter Roosenboom in 2009 alongside his full-time position at EY. His research interests include corporate finance, corporate governance as well as accounting. The article version of the second chapter of his dissertation, "Blockholder leverage and payout policies: Evidence from French Holding

Companies", has been published in the *Journal of Business Finance & Accounting*.

Sereeparp is currently an Associate Partner at the EY SaT practice in Amsterdam, where he specializes in providing corporate finance and transactions advice to multinational clients across industries. He has also been a CFA charterholder since 2011.

# Portfolio

**MPhil / PhD courses**

| *Course* | *Institution* | *Grade* | *ECTS* |
|---|---|---|---|
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| Economic Foundations | ERIM | 6 | 3 |
| Management Foundations | ERIM | 8 | 3 |
| Corporate Finance A | ERIM | 10 | 4 |
| Corporate Finance B | ERIM | 8 | 4 |
| Derivatives | ERIM | 8 | 4 |
| Investments | ERIM | 9 | 4 |
| Research Methodology and Measurement | ERIM | 7 | 5 |
| Statistical Methods | ERIM | 7 | 6 |
| Advanced Statistical Methods | ERIM | 8 | 5 |
| Applied Econometrics | ERIM | 8 | 5 |
| Philosophy of Science | ERIM | 7 | 5 |
| The Theory of Corporate Finance | ERIM | 8 | 5 |
| Behavioral Decision Theory | ERIM | 8 | 5 |
| Research Clinic - Finance | ERIM | 9 | 4 |
| English | ERIM | 10 | 4 |
| Scientific Integrity workshop | ERIM | Pass | 1 |

**Other professional qualifications**

CFA® charterholder since 2011

**Publications and working papers**

Anantavrasilp, S., A. de Jong, D. DeJong, and U. Hege, 2020, “Blockholder leverage and payout policy: Evidence from French holding companies”, *Journal of Business Finance & Accounting*, 47, 253-292.

Anantavrasilp, S., M. J.P. Lubberink & C. Huijgen, 2020, “Do firms anticipate security issues by conservative reporting?”

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*Data Set*:

WRDS / Compustat (https://wrds-www.wharton.upenn.edu/)

WorldScope (https://www.refinitiv.com/en/financial-data)

Dafsaliens.fr (https://www.dafsaliens.fr)

Diane (https://www.bvdinfo.com/en-gb/our-poducts/data/national/diane)

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Standard and publicly available statistical programs are used to conduct the analysis.

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This dissertation covers empirical analyses in the fields of corporate governance, corporate finance and accounting conservatism – as well as the relationships between them. The impact of the global financial crisis is also a key theme that runs through each of the three studies.

Chapter 2 examines the use of leverage in concentrated ownership structures and its effects on dividend payout policy. Using French data, we find that, in difficult times, companies exposed to blockholder leverage are reluctant to cut dividends. Furthermore, we look at the flow of funds within pyramids and observe that on average only 60% of dividends are passed through to the ultimate owners, with the rest predominantly used to meet debt service obligations of the pyramidal entities.

The latter two essays concern the demand for accounting conservatism and the impact of capital structure decisions on firm reporting behaviors. In Chapter 3, we investigate US firms that attracted new funds from capital markets and find support for the demand for conservative reporting by shareholders in the public markets. The analysis provides no significant results for debt issues or private equity deals, therefore reducing the importance of the role of financial reports in debt contracting or as a governance mechanism.

The final chapter focuses on the international aspect of accounting conservatism. Using an extensive dataset, I find variations in the reporting quality of corporates around the world. Additionally, the results indicate that conservatism is associated not only with the legal origin of the counties but also their institutional factors.

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