

Essays on Corporate Governance and Financial Reporting Quality

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"Its not what happens to you, but how you react to it that matters."

Epictetus

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Für Karlo

Chapter 1

Introduction

1.1 Motivation

It seems that every decade has a large-scale accounting scandal. In the early 2000s, Enron, Tyco and Worldcom were the tipping point to trigger new regulation to curb accounting fraud, ultimately resulting in the 2002 Sarbanes-Oxley Act. Eight years after, in 2010, the US government passed the Dodd-Frank Act as a reaction to the global financial crisis that was in large parts due to fraudulent accounting at firms such as Freddie Mac/Fannie Mae, AIG, and Lehman Brothers. While strictly speaking, the current Volkswagen “Diesel-gate” is no accounting scandal, it still shows, that managers do not shy away from illegal practices, if such practices help to increase sales and profits and show their companies in the best possible light for financial markets.

Events and crises like these, and their subsequent changes in regulation pose opportunities for accounting scholars to explore and refine their understanding of determinants and consequences of financial reporting quality. One broad stream of the accounting literature, which is the focus of this dissertation, is concerned with internal corporate governance structures and processes as well as their impact on financial reporting quality. In this dissertation, I use internal corporate governance as a term subsuming everything that is in the direct sphere of influence of a company’s shareholders and board of directors, also including a company’s management, internal control structures and the ownership structure (Brown et al. 2011).

Research history on ownership structure, both regarding ownership concentration and ownership identity, dates back over 86 years to the classic work of Berle and Means (1932). While Berle and Means laid the groundwork of much of today’s corporate governance thinking regarding agency costs, a

shift has started to emerge in the late 1990s towards a focus on the impact of blockholders.

Berle and Means (1932) and later the seminal work by Jensen (1976) and Jensen and Meckling (1986) viewed corporate reality as driven by agency concerns between managers and owners, defined as the fight between competing interests of unaccountable managers and many small shareholders (also termed Type I agency conflicts). This view culminated in the famous definition of corporate governance as the answer to the question of “[h]ow investors get managers to give them back their money” (Shleifer and Vishny 1997, p. 738).

The viewpoint has changed, however, at the latest since the work of La Porta et al. (1999), who empirically investigate the actual ownership structure of companies, not only in the U.S. but around the world. While agency costs are still of great concern in the literature, the focus switched from problems arising between the principal (owner) and agent (manager) to problems between principal and principal. The issue between majority owners, who potentially expropriate minority owners (also termed Type II agency conflict), became more relevant due to the findings by La Porta et al. (1999). These findings showed that, contrary to earlier thoughts, dispersed ownership is much less frequent and, in fact, ownership structures with concentrated owners, often a family, are the norm. In La Porta et al.’s (1999) sample of the 20 largest firms from 26 developed countries, 34.8% of firms have a family majority owner compared to 24.1% of widely held firms, 20.2% of state-owned enterprises and the remaining 20.9% of firms are held by miscellaneous owners, such as financial institutions, pensions funds, etc. The prevalence of family-controlled firms should be even more substantial for the whole universe of companies, as dispersed ownership in companies is most likely at the top end of market capitalization, the stock market sector on which La Porta et al. (1999) based their results.

While the early papers from La Porta et al. (1998; 1999) marked a clear shift of research focus and a starting point for the growing literature on family firms, the more recent emergence of institutional investors and the corresponding scholarly attention represents a more gradual change. Nevertheless, studying this increasingly common form of blockholder in a company is essential, especially considering institutional investors’ current size. Bloomberg (2017) states that just three institutional investors – BlackRock, Vanguard, and StatStreet – own over 20% of all publicly listed companies in the U.S.. Recent re-

search confirms these figures. On a per company basis, these three investors constitute the largest shareholder in 88% of the S&P 500 companies (Fichtner et al. 2017). Bebchuk et al. (2017) show that on average 44.2% of shares in the 20 largest public companies in the U.S. are held by the largest 50 institutional investors – an unprecedented degree of ownership concentration. Arguably, this new predominance of institutional investors as ownership type brings about new issues related to corporate governance.

Placed within the agency cost theory framework, it is interesting to study the heterogeneity between different blockholders and their impact on financial reporting quality. Also, the large heterogeneity within each blockholder is valuable to investigate. Studying different origins of blockholder status¹, different types of governance², and different institutional order³ helps to explain the different corporate governance mechanisms at work that shape firm outcomes (Edmans and Holderness 2017).

Starting with widely dispersed ownership in the 1900's, moving on to predominantly family-owned companies at the turn of the century, and having ever more concentrated and professional owners in the current time, governance structures exhibit evolutionary and on-going change. It is in this context, where my dissertation wants to provide insight into the following general research question:

What is the effect of different corporate governance stakeholders on the financial reporting quality of a firm?

The two literature streams concerned with corporate governance and financial reporting quality are vast. In turn, the literature at the intersection of these streams is extensive too. Thus, I will limit myself to literature addressing determinants of earnings quality, in particular different ownership and managerial characteristics of a company. Extensive overviews of the literature on corporate governance are provided by Bebchuk and Weisbach (2010) with a slight emphasis on finance literature and Brown et al. (2011) with an accounting focus. Dechow et al. (2010) provide an excellent general overview of the literature concerned with earnings quality.

According to existing research on corporate governance and earnings management, it seems that, in general, better corporate governance mechanisms

¹i.e. in family firms through founding a firm or through inheriting a firm.

²i.e. shareholder activism or (threats of) selling the ownership stake.

³i.e. operating in common or civil law, developed or emerging countries.

lead to less earnings management. Looking into more detail, however, the research shows mixed findings.

For family-owned firms, there are both theoretical arguments as well as empirical evidence, for why they should engage in more (or less) earnings management. The general theme in the literature is that family firms are more prone to engage in earnings management in Type II settings than they would in Type I settings. Type I settings, defined by agency conflicts arising between managers and shareholders (Jensen and Meckling 1976), should be less severe than in non-family companies for two reasons. First, in family firms members of the family are frequently both owners and managers at the same time. Second, even if the company has a non-family manager, the high ownership concentration should lead to close monitoring, in turn reducing managerial opportunism. Empirical literature supports both arguments (for example Wang 2006; Ali et al. 2007; Tong 2007; Prencipe et al. 2008; Jiraporn and DaDalt 2009; Cascino et al. 2010; Prencipe and Bar-Yosef 2011; Achleitner et al. 2014).

The motivation for higher earnings management in family firms stems from higher Type II agency conflicts, defined as settings where the agency conflicts arise between majority and minority shareholders (Fama and Jensen 1983; Shleifer and Vishny 1997). Family members that simultaneously own and operate a company have both the incentive and ability to expropriate wealth from other shareholders. Findings by, for example, Ding et al. (2007; 2011), Wang and Yung (2011) and Chi et al. (2015) support this view.

Currently, scholars seem to conclude that a different degree of investor protection per country is the primary determinant of earnings management by family firms.⁴ Studies showing that family firms engage less in earnings management are primarily from US or Western countries, whereas studies showing family firms engage more in earnings management are from primarily Asian or developing countries. Early cross-country findings from Leuz et al. (2003) show that earnings management across all company types is more prevalent in weak investor protection countries. More recently, Gopalan and Jayaraman (2012) find that in weak investor protection countries especially insider-controlled firms are strongly associated with earnings management. Based on these findings, the consensus seems clear: Family firms in countries with weak investor protection laws and institutions (measured by proxies developed by La Porta et al. 1998; see also Dyck and Zingales 2004; Djankov

⁴see for example a recent review by Paiva et al. (2016) or Bhaumik and Gregoriou (2010).

et al. 2008; Spamann 2009) engage in more earnings management than non-family firms and family firms in countries with strong investor protection laws and institutions engage in less earnings management than non-family firms.

Yet, I argue that this consensus seems premature for two reasons. First, the paper by Gopalan and Jayaraman (2012) focuses on insider controlled companies. The authors adopt the definitions of Claessens et al. (2000) and Facchio et al. (2001) for insider controlled companies as business groups, mixing (controlling) ownership by family, state or financial institutions. Second, even though the literature so far seems to delineate the direction of the effect around Eastern vs. Western countries, there is not sufficient evidence to conclude that institutional differences drive the effect. It could be the case, that study design choices of researchers primarily focused on the Asian region systematically differ from study design choices of researchers focused on the US or Western countries. Together with the limited focus on different types of family firms, this is the ideal setting to try to quantitatively identify the determinants of the heterogeneity in the relationship between family firms and earnings management. Thus, within the broader research question mentioned earlier, the first of the three separate research papers tries to give answers to the following, more granular, research question:

What is the overall effect of family ownership on earnings management – and is it possible to explain the heterogeneity in existing findings?

Other ownership structures have related issues as well. For example, literature finds a relation between institutional ownership and earnings quality that is similar to the one outlined for family firms. For institutional owners, one argument is that they can constrain the abuse of managers' discretion. Compared to individual investors, for example, the theory states that institutional owners have advantages in acquiring, processing, and consequently monitoring relevant company information. They can 'view behind the curtain' and limit managers' ability to engage in earnings management (Shiller and Pound 1989; Hand 1990; Jiambalvo et al. 2002).

The argument against institutional investors' ability to constrain managerial discretion is that, compared to other investor classes, institutional managers are overly short-term focused, as they are under a continuous performance evaluation loop (Black and Coffee 1994). This transitory outlook on their shareholdings pressures managers to show increasing earnings every quar-

ter, to such an extent that managers resort to using all their earnings management discretion (Porter 1992; Bushee 1998).

The differing theoretical arguments correspond to mixed empirical evidence as well. Findings from Graves and Waddock (1990) and Koh (2003) show that firms with short-term oriented institutional owners exhibit income increasing earnings management. However, less aggressive reporting is also supported by empirical evidence. Dechow et al. (1995) show that managers report less aggressively, if they have large institutional owners, and Cheng and Reitenga (2009) show that the incentive to manipulate earnings is constrained, if the company has actively involved institutional owners.

Concluding from the above, both streams regarding institutional and family ownership and their effect on earnings management are an ideal setting for meta-analysis. Both streams have a large number of existing studies, in which study design choices and measurement issues with earnings management models could drive the effect to a large extent, that so far lead to a tentative but cursory consensus. Hence, the second article specifically investigates the following research question:

What is the overall effect of institutional ownership on earnings management and is it possible to explain the heterogeneity in existing findings?

I use meta-analysis instead of a narrative review or a cross-country research design because “[m]eta-analysis is a systematic, quantitative, replicable process of synthesizing numerous and sometimes conflicting results from a body of original studies” (Ringquist 2013, p. 3). Meta-regression analysis in particular can obtain robust estimates from existing studies on a specific research question. Meta-regression, according to Stanley and Jarrell (1989, p. 299): “[...] studies the processes that produce empirical economic results as though they were any other social scientific phenomenon [and] provides a framework for replication and offers a sensitivity analysis for model specification”. As research is cumulative and does not readily progress linearly, to understand a phenomenon it is necessary to stop and take inventory. Meta-analysis is a transparent and objective tool to do so. With meta-(regression) analysis, scholars can get the whole picture of a literature strand, see similarities and differences and use the clarity gained to advance theory and improve empirical research designs (Rosenthal and DiMatteo 2001). According to an article published in the Journal of Economic Perspectives, introducing meta-regression, “[t]he most important strength of meta-analysis is that it moves

literature reviews away from casual judgments about “good” studies that deserve attention and “poor” studies that should be set aside, and instead provides a replicable statistical framework for summarizing and interpreting the full range of evidence” (Stanley 2001, p. 132).

To compare the various findings from existing research, both meta-analyses in Chapter 2 and Chapter 3 use a standardized measure of the relationship between the variables of interest in original studies. In particular, I use the partial correlation coefficient r_{xyz} , a scale-free measure that indicates both the magnitude and direction of the effect and, more importantly, is adjusted for control variables used in the original studies (Rosenthal 1991; Lipsey and Wilson 2001). In case of the meta-analysis on institutional ownership and earnings management, an example for an effect size would be the association between institutional owners (x) and earnings management (y), given a set of controlling variables (z). Within the meta-regression, the effect sizes from primary studies are regressed as dependent variable onto different predictors, such as study design choices and institutional differences.

A recent review of meta-analytic papers in accounting (Khlif and Chalmers 2015) finds that, even though meta-analytic studies have been published in the accounting literature as early as 1985, there are only 28 published meta-analysis papers in accounting by 2015.

Despite the low number of published meta-analyses in accounting, advanced meta-regression techniques seem to gain acceptance, especially in the corporate governance context. There are two recently published meta-regression papers on the relationship ownership concentration and firm performance (Wang and Shailer 2015), as well as ownership identity and firm performance (Wang and Shailer 2017). The aim for both meta-analyses in this dissertation is to be a similar introductory paper of state of the art meta-regression methods for the substantial literature on family firms and earnings quality as well as institutional ownership and earnings quality.

Ownership concentration and identity are important pieces in the corporate governance nexus, however, the findings from Chapters 2 and 3 show, among other things, that ownership structure alone does not sufficiently explain the variability of financial reporting quality in firms. It thus seems evident to look at the influence of managers next. Even though companies today look vastly different to companies in the 1930s, Berle and Means’ (1932) statement on the controlling powers of managers is not obsolete: Managers still shape

the firm along many dimensions through their decision making authority in day-to-day operations (Bertrand and Schoar 2003). The relevance of managers holds true for financial reporting quality as well (Ge et al. 2011) and thus motivates the third paper of my dissertation on managerial personality and fraudulent accounting practices. Given the difficulty of using experimental or quasi-experimental study designs in the corporate governance literature, in the third paper I apply the underutilized survey method to investigate the effect individual managers have on financial reporting quality and thereby contribute valuable findings. Along these lines, the Chapter 4 tries to answer the following research question:

Is there a link between adverse firm outcomes, i.e. accounting fraud, and negative personality traits of managers?

The paper in Chapter 4 builds on the observation that most studies looking at the influence of different stakeholders, regulations, and governance mechanisms on financial reporting quality, assume – either directly or indirectly – that said influence works through the impact it has on corporate managers. Even though, the corporate governance nexus tries to change the overall conditions for managers, such that their ability and incentive to act in their self-interest is restricted and instead directed towards acting in their shareholders interests, few studies so far focus directly on managers' actual behavior.

The role of individuals in the financial reporting environment has only recently gained interest in research. Bertrand and Shoar (2003) are one of the first authors, specifically looking at managerial traits and their effect on firm outcomes. They are the first to use the concept of manager-fixed-effects to show, that manager-fixed-effects are an important factor for firm outcomes. Bamber et al. (2010) and Ge et al. (2011) are the first authors to transfer the concept of manager-fixed effects on accounting concepts and show that managerial traits in general matter for several accounting choices, i.e. increasing operating leases, changing underlying pension assumptions, and voluntary disclosure. Building on the manager-fixed-effects literature scholars try to identify the determinants of managerial effects. One prominent approach taken is to look at personality traits, especially those with a negative connotation. Murphy (2012), for example, showed experimentally that people with a pronounced Machiavellian trait misreport to a higher degree and with less guilt compared to people with less pronounced Machiavellianism. Relatedly, Frino et al. (2015) and Ham et al. (2017) find lower reporting quality due to CEO and CFO narcissism.

The paper in Chapter 4 extends prior work in two ways. First, it is the first study to explicitly investigate the whole spectrum of negative personality traits. One can already find theoretical reasons for why the concepts of Machiavellianism, narcissism, and psychopathy each should individually have an impact on accounting actions taken by managers. In addition, all three traits share “a common core of callous-manipulation” (Furnham et al. 2013, p. 199) and have substantial empirical overlap (Jones and Paulhus 2012; Jones and Paulhus 2014). Thus, it seems relevant to include, if possible, all three measures to investigate the effects of personality traits on financial reporting behavior.

Second, this paper extends prior work by being the first to investigate negative personality traits’ effect on accounting fraud, i.e., the lowest for of reporting quality. Choosing fraudulent accounting practices helps to circumvent the previously mentioned problem of measurement issues regarding earnings quality. All attempts to measure the ‘abnormal’ or ‘discretionary’ part of accruals start with a function to model the ‘normal amount’ of accruals reflecting true underlying firm performance in the first place. Thus, if the accrual model is poorly specified, high ‘abnormal’ accruals might still be driven by firm performance, rather than showing managers’ use of accounting discretion (Dechow et al. 2010).

A different measurement issue arises as some features of earnings might either be perceived as ‘high-quality’ or ‘low-quality’, depending on the decision context of the user of financial reporting information. For example, a firm showing consistent and smooth earnings might be viewed to exhibit ‘high-quality’ earnings, as smooth earnings are a sign of persistent performance. Another view, however, might be that overly smooth earnings are a sign of ‘low-quality’, as smooth earnings distort the volatile nature of the business (Nelson and Skinner 2013). Quite contrary to this room of interpretation, fraudulent accounting practices, the measure used in Chapter 4, cannot be mistaken as an indicator of high earnings quality, as fraudulent actions are clearly outside the realm of GAAP discretion.

1.2 Outline

The following paragraphs briefly introduce the main findings and contributions of the empirical research papers, which are each self-contained and readable on their own. After that, this introductory chapter concludes with

an outlook on future research possibilities based on the work done in the dissertation. The remaining chapters present the empirical papers in line with the above outlined chronological evolution of corporate governance questions in the literature. The order of papers also corresponds to the dates of their drafting.

Chapter 2, “Do Family Firms Engage in Less Earnings Management? A Meta-Analysis” (co-authored with Tim Hasso & Dominik Wagner), explores the relationship between family firm status and earnings management and tries to synthesize and explain previous research findings with the help of meta-analysis. By meta-analyzing 305 effect sizes, nested in 37 primary studies, we find that the relationship between family firm status and earnings management is on average negative. More importantly, we find that the large degree of variation in findings can be explained by the earnings management proxy choice, the institutional setting, and design choice within each primary study. For example, one interesting finding from the meta-regression models is a strong and significant relationship between family owners and income-decreasing accruals, when original studies specifically split discretionary accruals into income-increasing and income-decreasing accruals, rather than looking at them on an absolute basis. The identified strong relation with income-decreasing accruals is in line with the existing theory that family firms are more concerned with long-term survival and that family owners have the desire to pass on the company to future generations (Anderson et al. 2003; Miller et al. 2006; Prencipe et al. 2008). In this respect, family owners might use accounting discretion to show conservative earnings figures. The main finding relevant for future research is that study design features can explain large parts of the effect size heterogeneity.

The significant negative coefficient for endogeneity controls indicates that, on average, primary studies that controlled for potential endogeneity concerns⁵ produce weaker positive (stronger negative) effect sizes compared to baseline OLS models. We find similar findings for control variables. Omitting essential control variables might bias the family firm-earnings management relationship. Control variables for Company age, block- and foreign ownership, having financial statements audited by one of the Big Four firms (Deloitte, EY, KPMG, pwc), and industry competitiveness all have significantly negative coefficients. Effect sizes from primary studies that controlled for

⁵Either via an instrumental variable approach or through a fixed-effects, random-effects or first difference approach.

these variables are systematically weaker (stronger) for family (non-family) firms.

Chapter 2 contributes to the accounting literature in meaningful ways. It complements existing findings that the extent to which managers engage in earnings management is in no small part dependent on cross-country differences and the institutional setting a firm operates in (Gopalan and Jayaraman 2012; Leuz et al. 2003). The Chapter further adds study design features as significant drivers explaining the heterogeneity of findings. Also, the paper in Chapter 2 is the first to my knowledge to apply advanced meta-regression methods in the financial reporting quality literature.

Chapter 3, “Do Institutional Owners Deter Earnings Management? A Meta-Analysis” (co-authored with Tim Hasso), explores the relationship between institutional investors and firms’ earnings management practices. Chapter 3 is the second meta-analysis in this dissertation and looks at a similar relation of interest but with a focus on institutional owners. The study fits in nicely with the overarching question of this dissertation, namely, what impact different types of corporate governance stakeholders have on a company’s financial reporting quality. The focus on a different set of shareholders enables the dissertation to compare the results against the backdrop of Chapter 2 and to see different rationales that managers in institutionally-owned companies might have to engage in earnings management. The paper in Chapter 3 analyzed 511 effect sizes, nested in 87 studies, and finds that the average effect is slightly negative. That indicates, institutional owners are able – on average – to get more transparent (less managed) earnings figures from their shareholdings. We further find considerable heterogeneity between the primary studies for the relationship between institutional ownership and earnings management. With the multivariate meta-regression models we can explain around 26% of the variability in effect sizes. Especially three study design choices were found to have a strong effect on the size and direction of effect sizes: First, primary studies explicitly looking at short-term oriented institutional owners report significantly stronger effects for earnings management than studies looking at institutional owners in general. Second, choosing the Dechow and Dichev (2002) model over the modified Jones model (Dechow et al. 1995) has a large impact on reported effect sizes. Compared to the baseline operationalization in our meta-analysis, which is the modified Jones model, studies that use the other widely used accrual model by Dechow and Dichev (2002) report earnings management relationships that

are significantly weaker (stronger) for institutional (non-institutional) owners. Third, studies that explicitly stated the link between institutional owners and earnings management as their main focus of the study, report earnings management relationships that are significantly weaker (stronger) for institutional (non-institutional) owners.

Chapter 3 contributes to the accounting literature in three important ways. First, it shows that study design choices are the primary determinant of the observed effects of institutional owners on a firm's earnings management practices in primary studies. Second, building on this contribution, the paper shows that especially the way accounting scholars measure the relevant constructs of ownership and earnings management is important. Our findings show that studies, which particularly investigate short-term institutional owners, report greater associations between said investors and earnings management. This is in line with theory, which states that short-term owners have a higher motivation to push their portfolio companies towards showing the best possible earnings figures (Bushee 1998; Graham et al. 2005; Bowen et al. 2008). Also, we find that primary authors' choice on how to model accruals matters. The modified Jones model (Dechow et al. 1995) and its related models, which try to explain accruals based on revenue growth and property, plant, and equipment figures, show significantly stronger relations between ownership and earnings management compared to the Dechow and Dichev (2002) approach. In Dechow and Dichev's approach, accruals are modeled based on past, present, and future cash flows from operations. Our observation of this systematic modeling difference across 87 studies is a good starting point for future research. Future research should investigate, whether institutional owners prefer managers, who manipulate long-term accruals over managers, who manipulate short-term operative cash flow figures. Third and last, Chapter 3 contributes to the financial reporting quality literature by trying to establish meta-analysis, particularly advanced meta-regression methods, as a new methodology in the literature.

Chapter 4, "The Fish Rots from The Head Down: Managerial Personality and Financial Accounting Manipulation" (single-authored paper), is the third paper of my dissertation and is concerned with the other main stakeholder in corporate governance, namely managers and how managerial personality drives the propensity to engage in fraudulent accounting activities. Using a primary sample of 956 professionals working in accounting and finance departments, I find that managers scoring high on the dark triad

personality scale (measuring narcissism, Machiavellianism, and psychopathy) engage in fraudulent accounting practices to a greater extent. Further, my study shows, that traditional risk management mechanisms like internal audit departments and whistle-blowing policies are only partially effective. Specifically, I find that a one-unit increase in the dark triad score increases the odds of engaging in fraudulent accounting by a factor of 2.49. I further find that internal audit departments wholly staffed by outside personnel are the most effective in curbing the adverse effect of dark triad managers. Compared to an internal audit department staffed entirely with in-house employees, outsourcing the internal audit leads to a roughly 60% decrease in the odds of engaging in fraudulent accounting.

With Chapter 4 of the dissertation, I contribute to the literature in three ways. First, I provide additional evidence linking executive personality characteristics to financial reporting practices. While Ham et al. (2017) and Ge et al. (2011) show manager-specific effects can explain reporting quality, my findings show the risk of deteriorating reporting quality through fraudulent accounting practices is also linked to manager-specific effects. Particularly, that fraudulent accounting practices are more common in firms with a high degree of dark triad personalities. More importantly, my study shows, that certain internal control mechanisms might not only be ineffective but rather enable dark personalities to manipulate. Second, by using survey data and explicitly asking the participants about actions, I can shed light on what avenues managers take, if they want to manipulate. In my study, the preferred option to manipulate is *recording revenue before completing all services*. 41.8% of the respondents said that they perform this action every quarter. Third, by using a survey, I can study fraud that has not been detected by external parties yet. This is the most important contribution of my study as research on ongoing but undetected fraud is largely missing in existing accounting research due to a lack of diversity in data gathering methods. To date, scholars still predominantly use archival or experimental data as their preferred option. Investigating ongoing fraud and its determinants is vital as fraud tends to remain hidden for long periods of time or even indefinitely (Zingales 2015).

1.3 Future research

My findings open up several opportunities for future research. Future research could build on the findings about the partial effectiveness of internal control mechanisms, namely that only entirely outsourced internal audit departments are effective in the presence of dark triad managers. Future research could try to replicate the findings with archival data and thereby provide further evidence that the effect will generalize beyond my survey findings. Relatedly, the literature on audit committee effectiveness could implement managerial personality traits, especially dark triad traits, as a further determinant of interest in their studies. In addition to that, a further investigation of personality traits seems reasonable based on the finding that personality already affects internal control mechanisms. It is therefore reasonable to assume that personality traits also impact the effectiveness of other control mechanisms close to the company. Also, future research could try to identify the specific channel through which managers try to influence internal control mechanisms. Here, a combination of experimental and survey data gathering might be promising.

Research building on the meta-analysis findings could, for example, start to specifically investigate the effect of different levels of ownership by institutional investors. The primary studies used as the basis of the meta-analysis in Chapter 3 mostly used dummy variables to measure institutional ownership or cut-off points of ownership percentages. Investigating the specific ownership-degree at which the incentives for or against earnings management might change is an important research topic. Notably, in the light of recent changes in the stock market, i.e., the rise of passive-index investing and corresponding cross-holdings, the previously stated theoretical arguments for the institutional ownership-earnings management relation might no longer hold true. More precisely, monitoring incentives might not be the same for institutional investors with large cross-holdings in the same industry. Also, the continuous performance evaluation loop might lose its influence if funds primarily get paid for passive exposure to an index, rather than for outperforming the index with their investment choices (for emerging research on related topics see for example Fich et al. 2015; Admati 2017; He and Huang 2017; He et al. 2017; Schmidt and Fahlenbrach 2017).

Finally, both meta-analysis papers were able to show that the variation in effect sizes not only stems from different investor protection and country dif-

ferences, but is driven by study design choices to a large extent. Yet, meta-regression analysis still can only point out the size and directional effect of different modeling choices. Getting as close as possible to a robust underlying effect for the relationship between ownership and earnings management might in the future be tackled with meta-analytic structural-equation modeling, or short MASEM (Cheung 2008; Cheung 2015; Cheung and Cheung 2016; Landis 2013). MASEM enables researchers to “[test] intermediate mechanisms in a chain of relationships and pitting mediation hypotheses or models against one another regarding existence, ordering, directions, and magnitudes of mediation (i.e., underlying) mechanism(s)” (Bergh et al. 2016, p. 478). Explicitly modeling the interrelated nature of ownership, earnings management, and firm performance might lead to an integrated and causal view on the relevant corporate governance, financial reporting quality, and firm performance theories as well as their empirical regularities.

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Chapter 2

Do Family Firms Engage in Less Earnings Management? A Meta-Analysis

¹**Abstract:** This study explores the relationship between family firm status and earnings management by meta-analyzing 37 primary studies and 305 effect sizes. In doing so, we attempt to explain the variation and conflicting findings in prior work. We find that on average the relationship between family firm status and earnings management is negative. We also find that much of the variation in prior studies can be explained by their choices in earnings management operationalization, the chosen study design, and the institutional setting that the studies drew their sample from.

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2.1 Introduction

In the past few years we have witnessed an increasing amount of researchers exploring if family firms engage in earnings management to a different extent as compared to their non-family firm counterparts (Achleitner et al. 2014; Ali et al. 2007; Prencipe et al. 2008; Wang 2006). Two points of consensus emerge from this body of work.

First, that family firms are a common business structure across the world. Researchers have found that family firms are the predominant business structure in most countries, often representing the overwhelming majority of all businesses and a significant portion of the publicly traded firms in both developed and developing economies (Anderson et al. 2003).

Second, researchers agree that there are inherent differences between family and non-family firms when it comes to their incentives to manage earnings (Bhaumik and Gregoriou 2010). Most notably, family firms are often said to have greater alignment between owners and managers, potentially leading to a less opportunistic earnings management by managers (Wang 2006). However, this close-knit relationship between the family-owners and managers provides the potential for the family to manage earnings for their personal purposes, and consequently expropriate wealth from minority shareholders who have a limited say in the business (Prencipe et al. 2008).

Despite these points of consensus that establish the business structure as important and an interesting setting to explore the issue of earnings management, there is disagreement with respect to the empirical relationship between family firm status and earnings management. In other words, after a decade of research and dozens of empirical studies, the evidence is not converging to find a net positive or a net negative relationship overall.

In this study, we attempt to synthesize the existing research in this area by performing a meta-analysis on 305 effect sizes nested in 37 existing studies and explore whether particular study characteristics, such as family firm definition, choice of earnings management proxy, or institutional setting, are driving the empirical results in either direction. Using state of the art meta-analytic procedures that address non-independence of observations and unequal effect sizes we are able to utilize multiple effect sizes per study to not only explain variation between studies but also within studies (Stanley and Doucouliagos 2012).

This meta-analysis highlights the issue of the multitude of family firm definitions in research. Many scholars have criticized family firm research and its inability to reach a consensus on how to define and identify a family firm (As-trachan et al. 2002). Critics have argued that this leads to a scattered field of research as it is hard to build a body of work when the concept being studied is not precisely defined. In our meta-analysis we find that while most studies use previous work (e.g. Anderson et al. 2003; Villalonga and Amit 2004) as a basis for how they identify family firms, there is still some variation with respect to the exact definition, making it hard to generalize findings.

We also explore whether the choice of how to measure earnings management is driving any variation in observed effects between studies. While most studies used either the original Jones (1991) or the modified Jones (Dechow et al. 1995) model, we found that more than twelve different types of earnings management proxies are being used across the analyzed studies. This again becomes an issue of contention as we find that the choice of model does to some extent lead to different results.

Additionally, one of the fundamental study characteristics is the institutional setting in which the study was performed. In total, the literature has explored the relationship between family firm status and earnings management across 20+ different - predominantly developed - countries, meaning that we have a broad basis within which we can look for evidence about a true underlying relationship. The large number of countries also gives us enough variation between them, for example with respect to investor protection laws or economic development, to explore such sources of effect size variation. In this study we find that institutional characteristics, such as the degree of voluntary disclosure can explain some of the conflicting findings in prior work. Investigating institutional differences with the help of meta-analysis is an important contribution. While carefully designed cross-country studies, such as the one by Leuz, Nanda and Wysocki (2003) also find, that institutional country differences matter for earnings management, they do so on an aggregated country level only. With meta-analysis, we can incorporate multiple sources of heterogeneity, arising out of cross-country-, firm- and study design-differences. Thus, the big contribution of meta-analysis is twofold. First, to show the aggregated average effect of family ownership on earnings management. Second, to uncover why the existing research might not converge, i.e which specific source of heterogeneity in primary studies lead to different results across countries or study-designs.

The paper proceeds as follows. We first discuss the underlying theory for why family firms may engage in more or less earnings management, and also consider how this relationship may be moderated by family firm definition, earnings management specification, and institutional characteristics. We then outline the meta-analytic procedure employed, followed by the presentation of the results. Finally, we discuss the findings in light of expectations and present some suggestions for future research.

2.2 Hypothesis Development

2.2.1 Family Firms and Earnings Management

Previous studies have primarily drawn upon agency theory in theorizing the relationship between family firm status and earnings management. Applying an agency theory lens we can identify two competing effects of family firm status on earnings management: the alignment effect and the entrenchment effect.

According to the alignment effect, there exists a natural alignment between owners and managers in family firms. Primarily stemming from the fact senior managers are often either members of the family themselves or have been placed there by the family, leading to a decrease of agency conflicts between owners and managers (Bhaumik and Gregoriou 2010). Further, the family owners of firms tend to be undiversified in their portfolio, and a large portion of their wealth is tied to the success of the firm (Prencipe and Bar-Yosef 2011). This means that family owners may be more diligent in monitoring managers and the notion that family firms may be superior in monitoring and thus governance was explored by Anderson et al. (2003), who found that bond-holders provide family firms with credit at a lower cost of debt as compared to non-family firms. This suggests that bond-holders believe that the governance structure of family firms may be superior in protecting the interests of creditors. The mechanism of this effect is not known, but it could be argued that there may be less opportunity for managers to extract benefits from the firm at the expense of capital providers. Further, family firms tend to be more concerned about their reputation, as the reputation and social status of the family is intertwined with that of the firm (Miller and Le Breton-Miller 2005; Wang 2006). So while an overlap in management and

ownership may lead to a greater opportunity to manage earnings, the reputation risk is large enough to ensure that the family uses their position in the firm in an appropriate manner.

On the other hand, there is a body of work that argues that the involvement of the family in the firm may lead to an increase in conflicts through the entrenchment effect (Morck et al. 1988; Shleifer and Vishny 1997). While this work is primarily focused on controlling shareholders and their incentives to expropriate wealth from minority shareholders, the same line of thought can be used to theorize the relationship between family firm status and earnings management. As family firms tend to be controlled by the family through a combination of ownership, management, and board representation, it gives them a strong position of power from which they are able to expropriate wealth from other shareholders. Thus, this power gives them the opportunity to manage earnings. While opportunity by itself does not lead to wealth expropriation, it may enable family firms to manage earnings when there are divergent goals between the family owners and non-family owners. One of the essential attributes of family firms is their desire for generational continuity, in other words the preservation of the firm and its family firm status. Consequently, the family may use their position of power to ensure the survival of the firm instead of maximizing the wealth of all shareholders (Prencipe et al. 2008). This effectively diverts wealth from the firm to the family at the expense of non-family shareholders. Overall, using an entrenchment effect view of the family firm, it is apparent that there is both opportunity and incentives in place to suggest that family firms may engage in earnings management to divert wealth to the family. As agency theory provides us with competing views on the earnings management behavior of family firms we posit that there is a relationship, but do not make any predictions on its direction.

HYPOTHESIS 1: There is a relationship between family firm status and earnings management.

2.2.2 Moderating Effects

While there may be an overarching relationship between family firm status and earnings management, we posit that it is more interesting to look at certain between-study and within-study characteristics that moderate this relationship. This enables us to look at whether there are certain firm- and/or country-level specifics that either amplify or constrain the extent to which

family firms engage in earnings management. These include, the operationalization of what constitutes a family firm, the operationalization of earnings management, and the formal and informal institutions present in the country setting. In this section we explore these moderators in detail.

Family Firm Definition

The empirical operationalization of what constitutes a family firm has been a core issue in family firm research since its inception. While there exists a number of seminal empirical works that define family firms in a public firm context (Anderson et al. 2003; Anderson and Reeb 2003; Villalonga and Amit 2004), there is no consensus definition. For example, Anderson et al. (2003) consider any firm a family firm in which a founding family or founding individual own a fraction of the company or serve on the board. However, Villalonga and Amit (2004) suggest a wider variation of definitions, which are based on family involvement in ownership, board, or management. Researchers exploring the relationship between family ownership and earnings management may use one of the many definitions out there, or choose their own. This naturally creates a fragmentation in research findings as they may not be comparable when using slightly different definitions. This issue is not unique to family firm research, several previous meta-analyses have considered measurement differences amongst the explanatory variable as a moderator effect (e.g. Dalton et al. 1998). Following this prior line of thought, we test if the different operational definitions of what constitutes a family firm may be a moderator of its relationship with earnings management.

HYPOTHESIS 2: The operationalization of family firm status moderates the relationship between this variable and earnings management.

Earnings Management Model

There is no single agreed upon model to measure earnings management, resulting in a lot of heterogeneity between studies and their modeling choices. There are two dominant approaches to detect manipulation of earnings by managers, (1) via modeling of discretionary accruals and (2) via modeling of real earnings management.

When measuring discretionary accruals, the most common models employed in the literature are the modified Jones model (Dechow et al. 1995), the cash flow oriented Dechow and Dichev (2002) model and the performance

matched model by Kothari, Leone, and Wasley (2005). A further level of heterogeneity is introduced through scholars also differentiating between working capital and total accrual models to detect earnings management. The main difference here is that working capital accruals disregard the long-term component of the accrual position, as changes in methodology or schedules for depreciation and amortization do not offer an easy way to manipulate earnings without outside stakeholders noticing.

The second way managers can try to meet certain earnings targets is by real earnings management. Real earnings management as defined by Roychowdhury (2006, p. 336) are “management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds”. The most common measures of real earnings management as employed in previous studies (Saenz Gonzalez and Garcia-Meca 2014; Wang 2006) are (1) abnormal level of discretionary cash flow from operations, (2) abnormal level of discretionary expenses, (3) abnormal level of production costs and (4) abnormal research and development expenditure. To further constrain the comparability of real earnings management studies some authors also employ an aggregate measure of different real earnings management activities. In our paper, we study whether those differences in the measurement of earnings management have a moderating effect on the results of the primary studies.

HYPOTHESIS 3: The specific model of earnings management moderates the relationship between family firm status and earnings management.

Apart from accruals-model choice, previous meta-analysis showed that it is useful to look at the differences of the exact sign of the dependent variable measure (García-Meca and Sánchez-Ballesta 2009) as this provides evidence on the tendency to either manage earnings upwards or downwards. In the case of family firms, this may be of great importance as there is anecdotal evidence to suggest that family firms primarily manage their earnings downwards as they are more concerned with minimizing their tax burden, whereas the long-term horizon of their ownership should lead to a decrease in upward earnings management as there is less short-term pressure to perform.

HYPOTHESIS 4: The sign of the earnings management model (absolute values versus directional values) moderates the relationship between family firm status and earnings management.

Institution-based View

Rather than having one distinct operating model for corporations across the globe, history shaped the development of many different ‘varieties of capitalism’ (Hall and Soskice 2001). The building blocks of the different varieties of capitalism are country specific institutional configurations which tend to be stable over time but fluctuate from country to country (Heugens and Otten 2007; Heugens et al. 2003). Thus, it is likely that institutions have a moderating impact on the relationship between family firm status and earnings management. These institutional characteristics are both formal and informal in nature and can be seen as explicit and implicit rules that constrain earnings management in any given country. Formal institutions may hinder opportunities and incentives for earnings management through legal means, whereas informal institutions can provide social constraints that decrease opportunities for earnings management by social norms of behavior, or through the social punishments for engaging in earnings management.

From an empirical perspective, formal and informal institutions may suppress the underlying variance of the focal relationship when studied within a single country, and the true underlying relationship may only manifest itself when studied in a multi-country setting. In our meta-analysis, institutional factors are modeled as moderators that explain cross-country differences in the family firm–earnings management relationship, as they determine the strength of the focal relationship in any particular national context. Institutions may address certain aspects of the principal agent problem (Carney et al. 2011), and thus influence the propensity of earnings management (Kanagaretnam et al. 2011). In our study we expect both formal and informal institutions to influence the relationship between family firm status and earnings management, as stronger institutions can obstruct the opportunities and incentives for earnings management.

Formal Institutions. Formal institutions are norms of behavior that have been codified explicitly through laws. They are devised to constrain behavior within desired boundaries, and punish deviations through legal means. Consequently, they are able to constrain earnings management by altering the incentives for earnings management. The formal institutions that matter most to the family firm–earnings management relationship are those that intervene in it directly by protecting the interests of minority investors, and those that influence it indirectly by exposing the family firm to compliance pressures.

The most important formal institutions are minority investor protection laws, which intervene in the earnings management process directly by limiting the opportunities for family firms to expropriate wealth from minority shareholders. As powerful insiders enjoying both informational and decision-making advantages over minority shareholders, families are often able to appropriate corporate wealth (Zingales 1994) through self-benefiting actions such as tunneling (Jensen and Meckling 1976; La Porta et al. 2000). Effective minority investor protection laws encompass a number of dimensions that aim to hinder this type of activity.

First, they contain disclosure obligations that require insiders to disclose any transaction that might have benefited them personally (Klapper and Love 2004; Leuz et al. 2003). Second, they provide avenues through which insiders be held accountable when engaging in such transactions and provide minority investors with access to necessary documents that enable them to pursue legal recourse. The effectiveness of legal enforcement may also deter earnings management behavior in family firms, as it constrains discretion through the threat of legal action by outside parties.

HYPOTHESIS 5: Formal institutions moderate the relationship between family firm status and earnings management.

Informal Institutions. Whereas formal institutions are codified, there exists a number of informal institutions within any given country that constrain behavior through accepted norms and threats of social punishments for failing to follow these norms. Much like in the case of formal institutions, informal institutions change the incentive structure for family firms to engage in earnings management. However, instead of the use of laws or regulation, informal institutions derive their strength through the distribution of intangible resources such as reputation (Deephouse and Suchman 2008). Given that the reputation of a family firm is closely tied to that of the family, these informal institutions may have a different effect upon their behavior as compared to that of non-family firms, as any engagement in earnings management may cause substantial reputational costs to the family itself. There are a number of different types of informal institutions that may affect the focal relationship. In this study we focus on codes of good corporate governance as one potentially relevant informal institution.

Codes of good corporate governance are often seen as a soft law mechanism that can deter earnings management. While good corporate governance

tends to be codified explicitly, breaches of corporate governance codes lack enforcement through legal means as they have often been devised by committees that do not have formal legislative power. Consequently, it acts as an informal institution that is often enforced through social means, either by the media or by various investor protection watchdogs. These codes will often encompass a number of practices that are recommended to improve the governance of the organization. This may include the structural component of the board of directors, such as their independence or prohibiting the CEO to also serve as the chairman of the board. These codes may also promote the existence of an audit committee, which may deter earnings management through its increased monitoring of the finance function. While breaches of codes of good corporate governance are not always legally enforceable, they are often based on the notion of comply or explain, that provides a social punishment to any non-compliance. this search

HYPOTHESIS 6: Informal institutions moderate the relationship between family firm status and earnings management.

2.3 Method

2.3.1 Meta-Analytic Procedure

We used a number of complementing methods to find relevant studies for this meta-analysis. First, we searched the following electronic databases: (1.) Business Source Complete, (2.) EconLit, (3.) Google Scholar, (4.) JSTOR, (5.) ProQuest Dissertations and Theses, (6.) Scopus/Elsevier and (7.) SSRN. We used the following search terms: “family firm*”, “family business*”, “family owner*”, “family control”, “family corporate governance”, “founding family” or “family management” and required the results to also contain one of the following search terms: “earnings management”, “earnings quality” or “discretionary accruals”. The asterisk indicates a search wild-card, to also include possible other word endings, for example the plural form of business, i.e. businesses.

This search strategy initially resulted in 2,904 hits. We then went through each abstract to reduce the results to 1,254 potentially relevant studies. Limiting the results to studies that specially explored the relationship between family firm and earnings management, reduced the primary studies to 47.

We checked those studies through forward and backward searches, to explore if any of the works that are cited may also be included in our study. Finally, we were able to extract effect sizes from 37 studies.

2.3.2 Coding

We extract and code relevant information from each identified study. Table 2.1 shows an overview of the coded variables and their definition. In summary, we extract the information on the statistical relationship between family ownership and earnings management. For this purpose, we use the Pearson product-moment correlation (r -based) as well as partial correlation (r_{xyz} -based) effect sizes. We use both of these measures for study descriptives and univariate Hedges and Olkin Meta-Analysis (HOMA). In our multivariate analysis we opt to use partial correlations in contrast to Pearson product-moment correlations as the earnings management literature only uses partial correlations in hypotheses testing due to the archival nature of data and the corresponding need to include control variables. In this procedure we also code all information with respect to how family ownership is defined and measured, similarly we also code the earnings management model used for each individual effect size.

Insert Table 2.1 here

We collect on average 8.2 effect sizes per study as each study usually includes several robustness checks with respect to family firm definition and earnings management model employed. Additionally, we also code information with respect to the institutional characteristics. We were able to analyze studies that first appeared in public,² between 2006 to 2014 and include a span of 20 sample years from 1997 to 2013. The primary data stems from 20+ countries. 34 authors of primary studies looked at 20 countries individually and 3 authors looked at mixed-country datasets. An overview of each study used, the study and effect size distribution per country and year can be found in Table 2.2, 2.3 and 2.4 respectively.

Insert Table 2.2 here

Insert Table 2.3 here

²We use the term “first appeared in public” instead of published to indicate that scientific work commonly referred to as unpublished work, such as working papers and thesis also have a date of publication.

Insert Table 2.4 here

One author was responsible for coding the effect sizes. To control for any coding bias, a second person coded a subsample of 100 randomly selected effect sizes. We compute a chance agreement-corrected measure of inter-rater reliability to assess the inter-rater agreement (Cohen 1960). The two coders have a high inter-rater agreement (Cohen's kappa coefficient = 0.97), indicating that single-coder bias is not an issue.

2.3.3 Analysis

We use meta-analytic regression analysis (MARA) (Lipsey and Wilson 2001) to test our hypotheses, using Fisher's z transformed partial correlation effect sizes. The use of partial correlations is important as earnings management is driven by a number of business characteristics, and we are thus able to control for cross-study differences and account for omitted variable bias by including dummy variables that specify if a certain control variable was used in the model for each estimated partial correlation. Furthermore, the use of partial correlations enables us to include effect sizes for different operationalizations of family ownership and earnings management, that are used by many authors of primary studies as part of their robustness checks. We weigh each effect size by using the inverse variance weights (Lipsey and Wilson 2001), and use a random-effect model (Geyskens et al. 2009) for our analysis. This allows us to account for effect size variability and attribute it to study-differences, sampling error, and an unmeasured random error component. The weighing by inverse variance weights of studies further serves as a form of quality control. As 'high quality' studies usually have smaller sampling variance, more weight is put on their effect size compared to studies with larger sampling variance.

2.4 Results

2.4.1 Outliers, publication bias & distribution of effect sizes

As the first step in our empirical analysis, we compute outlier statistics. The analyses consisted of standardized residuals (standardized z -values) to identify outliers. We kept the values in the interval of ± 2 and removed two effect

sizes outside this interval (Viechtbauer and Cheung 2010). The distribution of all coded effect sizes can be seen as a histogram in Figure 2.1.

Insert Figure 2.1 here

We compute a funnel plot to check for potential publication selection and availability biases in the data. The resulting plots are presented in Figure 2.2 and 2.3. Such biases exist when the primary studies included are a biased sample of all existing studies on this topic and/or when authors, reviewers and journal editors have a preference for statistically significant results (Hunter and Schmidt 2004; Stanley 2005). A symmetric funnel plot, where the effect sizes are spread out evenly both left and right from the center is seen as ideal. An overweight on either side is suggestive of publication bias. Figure 2.1, as well as the non-significance of regression tests, where standard errors (p-value: 0.1382) or sample sizes (p-value: 0.0690) are used as predictors, show that such biases are unlikely and suggests that in turn, the meta-analytic results should not suffer from such biases as well (Egger et al. 1997; Sterne and Egger 2005; Geyskens et al. 2009).

However, interpretation of funnel plots is controversial and seen as not an ideal indicator for potential bias, especially in case of substantial effect size heterogeneity (Lau et al. 2006). For this reason, a second look at potential bias is included in the multivariate analysis of our sample, where we include a control dummy variable for published studies.

Insert Figure 2.2 and 2.3 here

2.4.2 Meta-Analysis: Univariate Analysis

Table 2.5 presents the HOMA results for r-based and r_{xyz} -based effect sizes for the relationship between family firm status and earnings management. The HOMA tables show the average effect size (mean), alongside the number of effects (k), their standard error (SE) and 95% confidence interval (CI 95%), a chi-square test for homogeneity (Q-test) and the I2 index for the amount of relative heterogeneity observed, compared to total variance in the effect sizes, that also includes sampling variance (Higgins and Thompson 2002).

The findings show that overall, family firms manage earnings less than non-family firms. The mean effect size (ES) is -0.02. This evidence is based on k = 229 effect sizes. The Q-statistic displays the homogeneity of the effect size. A highly significant value suggests that it is likely that moderators can explain

part of the great variability in effect sizes. Thus, we proceed to explore potential moderators of the relationship between family firm status and earnings management.

Insert Table 2.5 here

First, we looked at different family firm operationalizations, differentiating among various family firm definitions: family ownership, family ownership and or families presence on the board, and family ownership and or families active role in management. Our findings reveal that using either type of operationalization has no impact on the effect size.

We then proceed to earnings management model choice and specification. We find that the use of a real earnings management model has a significant negative effect on earnings management ($ES = -0.03$) which is more negative than the overall baseline of -0.02 , whereas the subset for accruals based earnings management shows the same size and direction as the overall effect.

However, the choice of accrual based earnings management model does influence the effect size. Using the primarily cash-flow oriented model by Dechow and Dichev (2002) shows a significantly more negative effect ($ES = -0.05$). This holds even stronger for models based on discretionary estimation errors such as Francis et al. (2005) with an average effect size of -0.11 . We also find that the size of the effect is significantly related to the choice of only exploring income decreasing earnings management ($ES = 0.09$), where it appears that family firms engage in significantly more earnings management than non-family firms, when it comes to lowering the reported earnings figure.

We also find that it makes a difference whether or not we look at samples originating out of published or unpublished studies. Family firms in published papers show a more negative effect ($ES = -0.03$) while in working papers or dissertations the effect size is slightly less negative ($ES = -0.01$), suggesting that there may be some publication bias on the margin.

Finally, contrary to what we expect, we find effects that are more negative ($ES = -0.04$) in subsamples where the authors made an attempt to reduce potential endogeneity concerns (fixed- or random-effects panel models, 2SLS, 3SLS or GMM) compared to overall sample ($ES = -0.02$). However given that with HOMA we only look at sub-samples, this effect might change in the following MARA analysis, where we use the full data and control for multiple potential moderators.

The HOMA results per country also show an interesting pattern (see Table 2.6). By splitting our dataset into country-specific subsamples we find, that all primary studies that were conducted in developed countries show a negative effect of family firm status on earnings management, while studies with an emerging country sample show a positive effect of family firm status on earnings management. Here it is also interesting to look further into the multivariate case and compare if our control variables for the degree of institutional development matches the HOMA findings, namely that highly developed countries (in terms of GDP per capita, degree of minority protection and voluntary disclosure) have family firms that manage earnings less than non-family firms and emerging countries have family firms that manage earnings more than their non-family counterparts.

Insert Table 2.6 here

We can also take a look at the HOMA results over time (Table 2.7). By splitting our dataset into specific subsamples per median sample year we find, that over time the effect size between family firm definition and earnings management turns from strongly negative in 1997 into neutral and even slightly positive from 2005 onward. Finally, HOMAs on a per original study basis can be seen in Table 2.8.

Insert Table 2.7 here

Insert Table 2.8 here

All HOMA findings mentioned are significant at the $p < 0.05$ level or smaller and hold, in terms of size and direction, for r_{xyz} -based and r -based effect sizes. For the r -based effect sizes we find slightly less significant relationships, which should mainly be driven by the smaller sample size for correlation based effect sizes in our data.

2.4.3 Meta-Analysis: Multivariate Analysis

Table 2.9 reports five meta-analytic regression (MARA) models that are all based on r_{xyx} -based effect sizes, as partial correlations are needed to see the effects control variables and study design choices have on the overall relationship. The r_{xyz} -based effect sizes thus show an effect closer to the true mean effect size compared to simple correlations (Stanley and Doucouliagos 2012). The first four models show our full model estimated with different

techniques to show that the direction and significance of all moderator effects are robust to different assumptions regarding the underlying data. This directly addresses the issue of non-independence of observations as we use multiple effect sizes per study, and also controls for the fact that we collect an unequal amount of effect sizes across studies.

Insert Table 2.9 here

Model 1 shows the basic random-effects meta regression. Model 2 shows the full model estimated with Knapp and Hartung (2003) adjustment to reduce the risk of Type I errors. This changes the significance tests for the individual coefficients from ones based on the normal distribution to tests based on a t-distribution. Model 3 shows a monte-carlo test as suggested by Higgings and Thomspson (2004), to check for the robustness of the obtained p-values for all moderators. Model 4 employs a hierarchical linear model, where each effect size is nested within their respective study per design, instead of a statistical correction of potentially clustered SE in the previous models. Finally Model 5 is the general-to-specific model, where we tried to mitigate potential multicollinearity between moderators. Here, we removed insignificant variables at the 10 % cutoff-value one at a time to get to the specific model. Our general model contains 27 moderators and the specific one has 12 moderator variables remaining.

All models fit the data well, as can be seen in the degree of improvement compared to the null model without any moderators (pseudo R²), which is around 82% for the model based estimation techniques and 89% for the HLM estimation. Also the I² statistic shows that we were able to reduce the unaccounted heterogeneity from 86 % in basic HOMA analysis down to 49% in our MARAs. However, it appears that some moderator variables are still missing as indicated by a significant Q-residual measure (Lipsey and Wilson 2001). In all models the constant represents the baseline scenario of a firm that is defined as family firm solely by their ownership structure and the baseline earnings management measure is the original Jones (1991) model.

We find that several of our moderator variables can explain variation in the effect sizes and, more surprising, that some variables we thought would have an impact do not moderate the relationship. For example it appears that it does not make a difference, if the underlying study includes participation on the board or active management in their family firm definition. Also most of the different earnings management models do not appear to influence the

findings whether or not family firms manager earnings more or less than their non-family counterparts. However, using the earnings management model by Francis et al. (2005), which splits the estimation errors in innate and discretionary parts leads to a overall smaller relationship ($\beta = -.09, p < .001$) between family firms and earnings management. Also, scholars that look at managers' choice to specifically manage earnings upwards ($\beta = .003, p < .05$) or downwards ($\beta = .15, p < .001$) show stronger effect sizes than scholars that look at absolute accrual levels. Especially, using the discretion to manage earnings downward appears to happen much more frequently in family firms than in non-family firms. This is the strongest moderator finding in terms of effect size we have in our model.

Looking at common control variables included in primary studies, we find that the age of a company ($\beta = -.04, p < .05$), the competitiveness of a company's industry ($\beta = -.08, p < .001$), that the company is being audited by a Big Four firm ($\beta = -.04, p < .001$) and a company having a foreign owner ($\beta = -.07, p < .05$) are important variables to include in primary studies as they significantly decrease the effect size between family firms and earnings management. In terms of institutional characteristics, we find that a country's degree of voluntary disclosure is a significant moderator ($\beta = -.0033, p < .001$).

Finally, we find that study characteristics, such as the number of predictors in the original sample ($\beta = -.004, p < .001$), and the inclusion of endogeneity checks ($\beta = -.03, p < .001$) can explain the variation in effect sizes.

Furthermore, it appears, that comparable to the HOMA findings, published studies find a significantly smaller effect ($\beta = -.03, p < .05$). All results just mentioned are based on Model 1, but the results generally hold in terms of size, direction and significance for all other estimation models as well. Only the HLM model shows two changes. Controlling for a firm's financial structure (Leverage) becomes a significant positive ($\beta = .08, p < .05$) moderator while controlling for endogeneity ceases to be significant.

To get to a more detailed understanding of the different drivers for the family firm-earnings management relations we can look at Table 2.10. In Table 2.10 we used our full model on several subsets of the data, namely: (1) Effect sizes solely from published studies; (2) Effect sizes solely from unpublished work; (3) Effect sizes solely focusing on accrual based earnings management; (4) Effect sizes solely focusing on real earnings management; and (5) Effect sizes solely from studies focusing on single countries.

Insert Table 2.10 here

Five observations are especially noteworthy. First, the highly significant positive moderator for studies looking at family firms that use their discretion to decrease earnings remains highly significant and positive in all sub-samples (e.g. $\beta=.19$, $p<.001$ for the published studies). Second, published studies that look at real earnings management are finding a significant stronger link between family firm definition and earnings management ($\beta=.001$, $p<.1$). Third, including size ($\beta=-.69$, $p<.001$) and leverage ($\beta=.80$, $p<.001$) as control variables become the most important moderator in the subset for effect sizes from published studies. This is indicative of the common nature of size and leverage as control variables, as the few published papers who do not control for these show vastly different results. Fourth, different institutional factors are driving the results in the published vs. unpublished subsamples. In published work, the degree of minority protection makes a significant difference, as it weakens the ability for family firms to manage earnings ($\beta=-.11$, $p<.05$) compared to their non-family counterparts. In working papers and dissertations minority protection is not significant, but rather the degree of voluntary disclosure in a country slightly weakens the effect size ($\beta=-.003$, $p<.001$). Fifth, studies that look solely at real earnings management show that family firms manage real earnings more, if they also actively participate on the firms board ($\beta=.04$, $p<.1$).

2.5 Discussion

Earnings management with its distorting effect on financial statements is detrimental to a transparent and accurate valuation of a company. Consequently, investigating governance mechanisms that may curtail this activity is a worthwhile endeavor. In our study we analyze 305 effect sizes from 37 primary studies and find that on average family firms engage in less earnings management. Given the mixed results of prior works in this area we provide a valuable contribution by synthesizing existing results in the attempt to find a pattern. Our study found that much of the conflicting findings in prior research could be attributed to cross-model differences. These differences included the way a family firm is defined, the choice of earnings management model, the institutional characteristics from where the sample was drawn, and the inclusion of specific control variables. These between-model

differences were responsible for the majority of the conflicting findings. Consequently, highlighting the issue of operationalization, institutional setting, and model specification is an important contribution of our study. We find that operationalization of both constructs, family firm and earnings management, have a significant effect upon the results of prior work.

What exactly constitutes a family firm has for a long time been an issue in family firm research (Astrachan et al. 2002), especially when dealing with publicly listed firms where the founding family ownership may only be minimal (Villalonga and Amit 2004). As the family may exert influence through ownership, management, or board representation, it becomes hard to pin down exactly which channel of influence is sufficient to be considered a family firm. Furthermore, the pyramidal ownership structures and indirect ownership may further complicate this process in institutional settings where this is common. A possible solution in future research is to report explicitly the different effects of family firm definitions on the relationship of interest. While the majority of studies in our sample used some form of robustness tests, the majority of these were not reported, but instead only briefly mentioned in the text. We believe that it is crucial that these results are reported, even if only in an abbreviated format (e.g., Ali et al. 2007; Villalonga and Amit 2004). We find that generally speaking the definition of family firm does not explain much of the variation in previous findings, except when we only consider studies that investigate real earnings management. In this case, we find that family representation on the board is associated with an increase in earnings management. As board representation implies active rather than passive involvement of the family, it suggests that there is evidence of the entrenchment effect in this particular instance.

Similarly, we find that the choice of earnings management model and the choice to use signed accruals can both explain the variation in prior findings. Earnings management research, like family firm research, has long suffered from fragmentation, as there are multiple ways in which one can operationalize the construct. Not only are there multiple models, but one can also choose to analyze working capital or total accruals as well as choosing absolute or signed accruals. In many ways, studying earnings management in family firms is an intersection of two research streams where choice of operationalization and 'researchers degrees of freedom' (Gelman and Loken 2013; Simmons et al. 2011) are core issues. Our main finding with respect to the operationalization of earnings management is that it is important to separate

positive and negative accruals. We find that family firms tend to engage in income-decreasing earnings management. This is in line with previous anecdotal evidence that suggests that family firms often seek to minimize taxes.

We also find that institutional characteristics are an important area of consideration. While cross-country studies are increasingly becoming more common (Jara Bertin and López Iturriaga 2014; Rifi 2010; Sáenz González and García-Meca 2014), the scope and sample size a meta-analysis offers makes it a complementary method to investigate differences across countries. We find that family firms in developed countries engage in less earnings management, whereas the opposite is true for developing countries. By considering specific institutional mechanisms, we find that level of voluntary disclosure is an important moderator. Family firms in countries with a high level of voluntary disclosure tend to engage in less earnings management. As voluntary disclosure and economic development is highly correlated, further study is needed to understand the true underlying mechanism of our finding.

Our study has a number of limitations. First, our sample of primary studies is somewhat limited at 37. Yet, as we are interested in partial correlation based effect sizes we are able to analyze 305 effect sizes, given that most studies usually include several additional analyses. Second, while we are able to explain a large portion of the variance in prior research, our diagnostics show that there is still a considerable amount of heterogeneity that cannot be explained by our moderators. Consequently, future research should consider additional moderators that we may have overlooked. Third, we are limited to studies primarily written in English, with a few exceptions that we found through backward and forward search. This is somewhat problematic when it comes to non-English research from some developing countries. However, as the trend in academia is a move towards research in English we hope that this did not exclude many studies.

Notwithstanding these limitations, we believe that this study contributes to the discussion on the underlying phenomenon of earnings management in family firms. Our use of the meta-analytic method allowed us to show that, while there is considerable variance in prior findings, the majority of variance is attributable to cross-model differences. The strength of the meta-analytical method is based on the notion that authoritative assessment of a body of literature needs to consider the full body of work and not just a few select studies. While single studies alone cannot get close to providing conclusive proof of a theory due to sampling error and other forms of statistical artifacts,

the use of meta-analysis allows us to evaluate the whole cumulative research efforts up until today. Furthermore, as accounting research does not have a tradition of replication, the body of work is often too fragmented in terms of cross-study differences for qualitative evaluation, such as a traditional review, in order to successfully synthesize the findings for a phenomenon of interest.

A suggestion related to replication is that authors in the future should calculate the effect size of their finding and discuss its magnitude. This is increasingly found in several other academic disciplines that have shifted away from the reliance on statistical significance. We would further encourage researchers to use online appendices. A number of accounting and finance journals allow researchers to provide online appendices to upload further results, raw data, and code to replicate the analysis. Having access to such data allows future meta-analyses to extract more effect sizes from each study, leading to more robust meta-analytic findings. Raw data and code provides further transparency and allows researchers to understand exactly what transformations were made to variables. While studies usually describe this process in the method section, there are a number of details that will usually not be explicitly stated, leaving the decision how to interpret the variables (and thus ultimately the degree of replication) to the meta-analysts.

This meta-analysis provides a valuable basis for future primary studies as well as meta-analytic studies to investigate the nature of family firms. Contrary to our expectations, we could not primarily attribute the large heterogeneity of findings to the multitudes of different family firm and earnings management operationalizations, but rather to study design choices and cross-country differences. Because of that, we believe that future studies should investigate potential interaction effects of institutional settings and ownership structures.

Specifically, we were unable with the current literature to code differences in a family's share of cash-flow and control rights in a firm. Recent literature on the control-ownership wedge finds that shareholders with a disproportionately high degree of control rights relative to their ownership stake engage in more earnings management than in firms with a smaller control-ownership wedge (Haw et al. 2004; Kim and Yi 2006). As we suspect that family firms often have such a control-ownership wedge it seems fruitful to investigate, if there is an interaction effect between a control-ownership wedge and cross-country differences (such as the degree of minority protec-

tion). If yes, family owners might have a 'lower-bound' of cash-flow rights, where they stop primarily worrying about reputation (Miller and Le Breton-Miller 2005; Wang 2006) and long-term survival (Prencipe et al. 2008) and start to focus on wealth-maximization like other investor-types. Thus, orienting family firm research towards a more fine-grained control-ownership distinction might lead towards new theory development, claiming that family owners are not that different to other owners after all.

And, in a related fashion, as family firms come in many different shapes and sizes, ie., fully owned and operated founding family firms or firms where the family is only present as a minority shareholder, we oppose the common critique that transparent earnings are of limited importance in family firms. Especially given the large variety of incentives and possible channels of influence a family has, studying their earnings management behavior is of great importance for capital markets in general, regulators, and for other investor types, e.g. retail investors.

2.6 Appendix

FIGURE 2.1: Effect size distribution across all studies

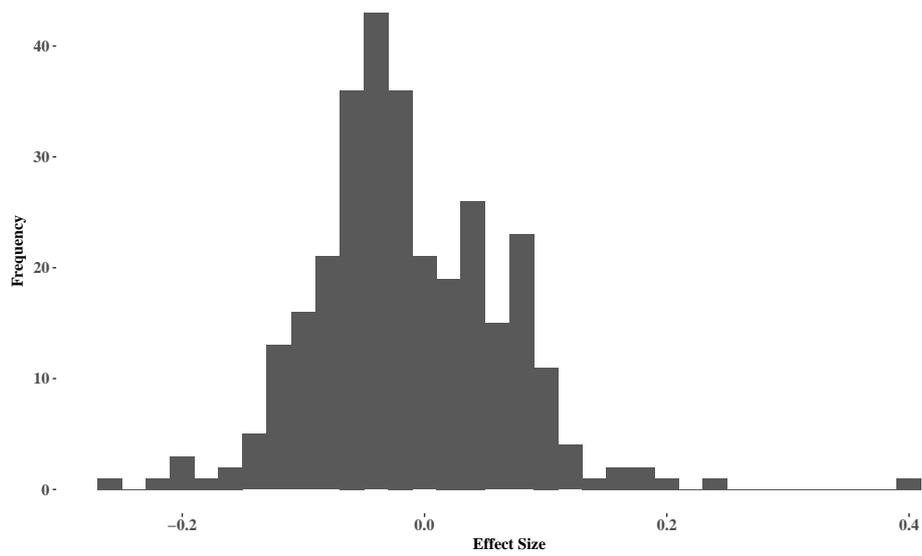


FIGURE 2.2: Funnel Plot for Standard Errors

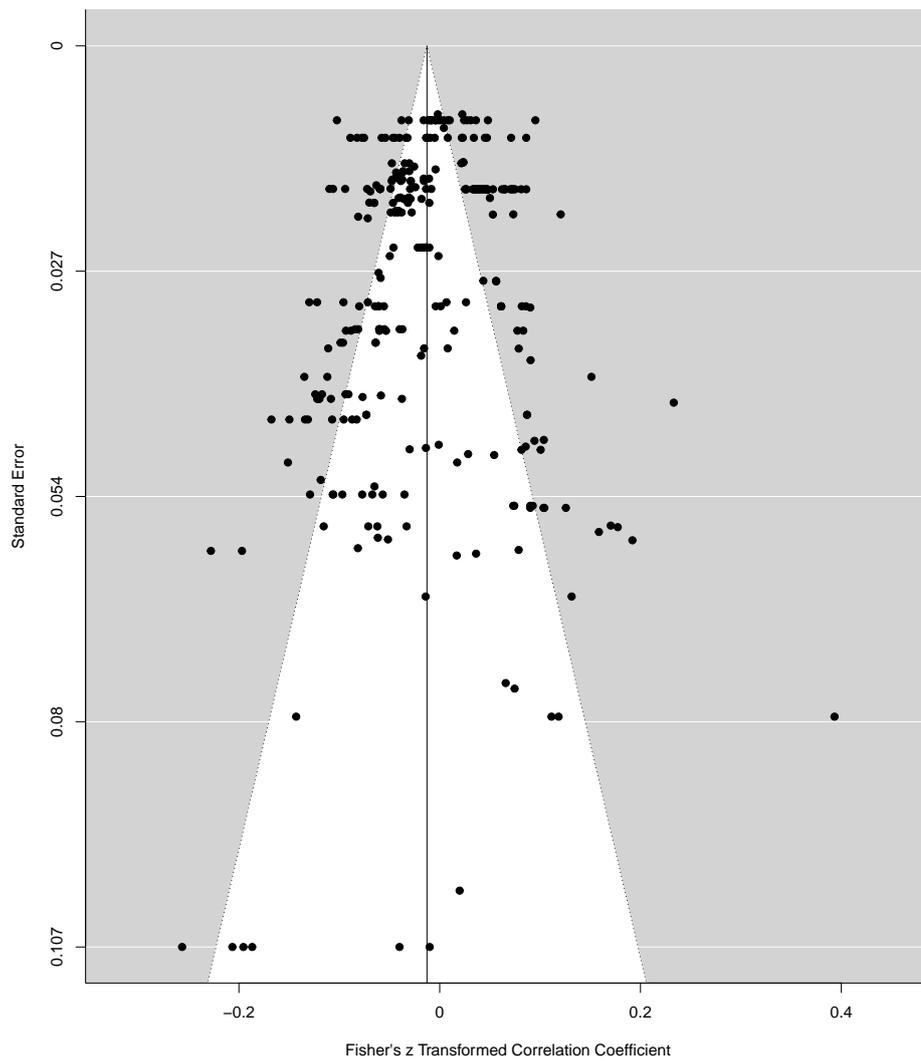


FIGURE 2.3: Funnel Plot for Inverse Standard Errors

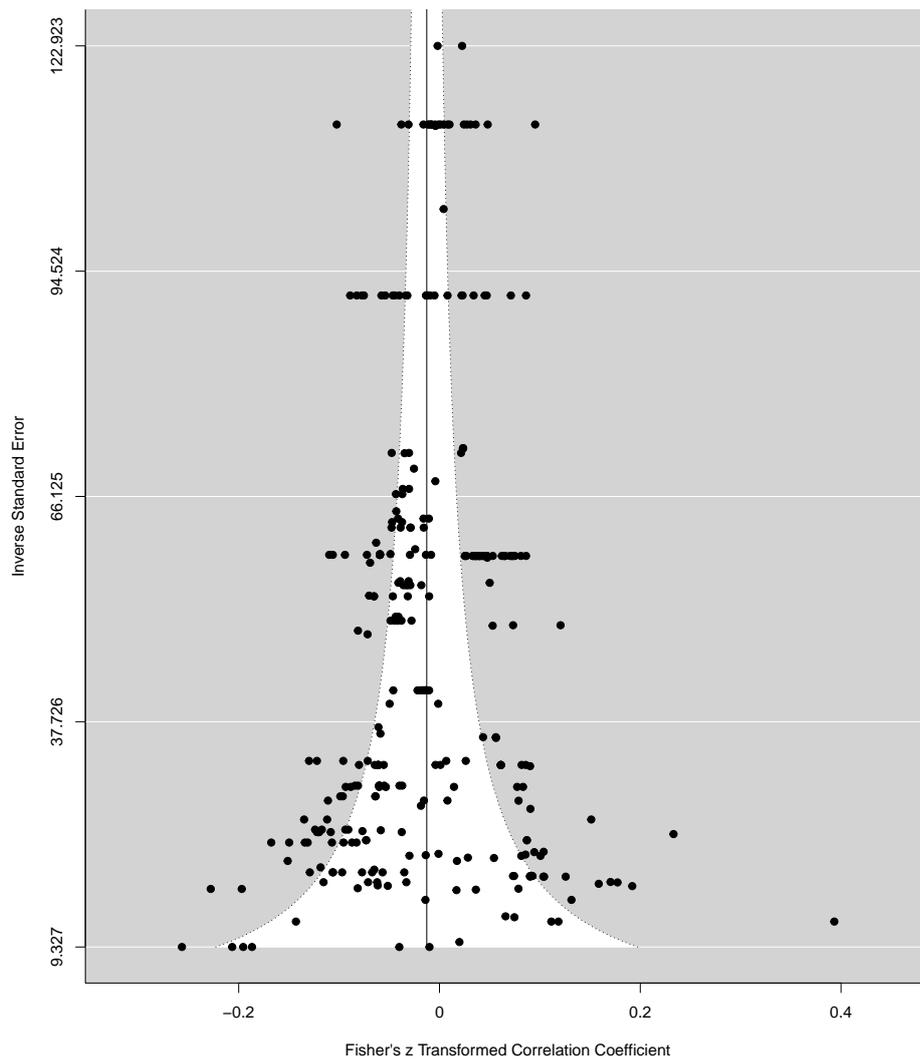


TABLE 2.1: Variables Used in Meta-Analysis

Variables	Definition
Overall relation	Effect size reported in the primary study concerning the relationship between family firm status and earnings management. Based on Fisher's z-transformation of the Pearson product-moment correlation and/or the partial correlation
Moderators	
Family Firm Definition	
Family Owned	Dummy is 1 if a family firm status is based on ownership in original studies
Family Owned + Boardseat	Dummy is 1 if a family firm status is based on ownership and/or having a family member on the company board in original studies
Family Owned + Management	Dummy is 1 if a family firm status is based on ownership and / or having a family member in active management in original studies
Earnings management measure	
Accrual earnings management	Dummy is 1 if the dependent variable effect size is based on an accrual earnings management model
Real earnings management	Dummy is 1 if the dependent variable effect size is based on a real earnings management model
Jones Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Jones (1991)
Modified Jones Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Dechow et al. (1995)
Dechow Dichev Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Dechow and Dichev (2002)
Kothari Leone Wasley Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Kothari, Leone and Wasley (2005)
Francis et al. Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Francis et al. (2005)
Other Model	Dummy is 1 if the dependent variable effect size is based on an accrual model other than the ones mentioned above
Increasing Accruals	Dummy is 1 if the dependent variable effect size is based on a positive, non-absolute measure of accruals
Decreasing Accruals	Dummy is 1 if the dependent variable effect size is based on a negative, non-absolute measure of accruals
Institutional Factors	
Degree of Minority Protection	Continuous Variable measuring the degree of minority protection (Anti-Director-Rights Index). Taken from Spamann (2010)
Degree of Voluntary Disclosure	Continuous Variable measuring the degree of voluntary disclosure (CIFAR Index). Taken from La Porta, Lopez-de-Silanes and Shleifer (2006)
In(GDP per capita)	Continuous Variable measuring the natural logarithm of GDP per capita for the underlying median sample year and country in original studies
Study-specific moderators	
Public	Dummy is 1 if the primary study uses a sample of publicly listed firms
Private	Dummy is 1 if the primary study uses a sample of both private and publicly listed firms
Controlled for Endogeneity	Dummy is 1 if the primary study employed methods to control for possible endogeneity (Fixed- (Random-) Effects Estimation, 2SLS, 3SLS, GMM)
Published	Dummy is 1 if the primary study is published in a journal
Unpublished	Dummy is 1 if the primary study is a working paper or a thesis
Median Sample Year of Study	Variable measuring the median sample year of the sample window used in original studies
# predictors in original sample	Variable indicating how many control variables alongside the constant and the partial correlation of interest where used in original studies
Control Variables in original Study	
Size	Dummy is 1 if the primary study included a control variable for size of a firm
Leverage	Dummy is 1 if the primary study included a control variable for leverage ratio of a firm
Loss	Dummy is 1 if the primary study included a control variable for negative earnings of a firm
Block Ownership	Dummy is 1 if the primary study included a control variable for block ownership of a firm
Growth	Dummy is 1 if the primary study included a control variable for sales or asset growth of a firm
Industry Competitiveness	Dummy is 1 if the primary study included a control variable for competitiveness of the industry of a firm
Performance	Dummy is 1 if the primary study included a control variable for financial performance of a firm
Big Four Auditor	Dummy is 1 if the primary study included a control variable for whether the firm is audited by a big four accounting firm
Age	Dummy is 1 if the primary study included a control variable for age of a firm
Foreign Ownership	Dummy is 1 if the primary study included a control variable for foreign ownership of a firm

TABLE 2.2: Primary Studies Used in Meta-Analysis

Author(s)	Year	Country	Sample Size	Sample Year(s)	Journal
Achleitner et al.	2014	Germany	4973	1998-2008	EAR
Adigunzel	2013	Turkey	410	2006-2010	AFR
Alghamdi	2012	Saudi Arabia	337	2006-2009	Thesis
Ali et al.	2007	USA	1602	1998-2002	JAE
An	2009	South Korea	509	2000-2005	Thesis
Barrios and Macciocchi	2014	Italy	1035	2006-2010	WP
Bona Sanchez et al.	2007	Spain	90	1997-2003	RC
Chen et al.	2014	Japan	12775	2004-2011	WP
Chi et al.	2014	Taiwan	2492	2000-2005	IREF
Desai et al.	2012	India	160	2003	WP
Ding et al.	2011	China	1361	2003-2006	JAAF
Ebihara et al.	2013	Japan	8368	2006-2008	WP
Gonzalez and Garcia-Meca	2014	Multiple (Argentina, Brazil, Chile, Mexico)	1740	2006-2009	JBE
Hashim and Devi	2008	Malaysia	280	1999-2005	BC
Hasso	2013	Australia	570	2002-2006	Thesis
Houge et al.	2010	Bangladesh	648	2001-2006	ATBMR
Ishak et al.	2011	Malaysia	236	2009	IPEDR
Jaggi et al.	2009	Hong Kong	309	1998-2000	JAPP
Jaiswall and Banerjee	2012	India	1078	2006-2012	WP
Jara Bertin and Lopez Iturriaga	2014	Multiple (Canada, USA, UK, Spain, France, Italy)	15113	2008-2013	SJFA
Jiraporn and DaDalt	2009	USA	805	1994-1999	AEL
Johl et al.	2010	Australia	354	2008	WP
Kiatapivat	2010	Thailand	883	2005-2007	Thesis
Koh and Lee	2008	South Korea	3440	2006-2008	WP
Lamerikx	2012	Germany	874	2008-2011	Thesis
Madani et al.	2013	Iran	102	2003-2010	JICRB
Mard and Marsat	2012	France	1045	2004-2008	CCA
Munir et al.	2013	Malaysia	236	1995-2004	AAOMJAF
Paiva and Lourenco	2013	UK	1044	2006-2010	WP
Rifi	2010	Multiple (France, Germany, Netherlands, UK)	718	2002-2007	Thesis
Siregar and Utama	2008	Indonesia	558	1994-2002	IJA
Soler Vila	2013	Spain	5912	2003-2011	Thesis
Tischni and Di Donato	2012	Italy	378	2002-2004	COC
Tong	2007	USA	3054	1993-2003	AA
Wang	2006	USA	3456	1994-2002	JAR
Ye et al.	2010	China	5216	2001-2006	AA
Yupitun	2008	Australia	1375	2006	Thesis

Journal abbreviations are as follows: AAOMJAF: Asian Academy of Management Journal of Accounting and Finance; AEL: Applied Economics Letters; AFR: Accounting and Finance Research; BC: Book Chapter; ATBMR: Academy of Business, Business Management Review; CCA: Comptabilite-Contrôle-Audit; COC: Corporate Ownership and Control; EAR: European Accounting Review; IJA: International Journal of Accounting; JICRB: Interdisciplinary Journal of contemporary research in business; IRE: International Review of Economics and Finance; JAAF: Journal of Accounting, Auditing and Finance; JAE: Journal of Accounting and Economics; JAPP: Journal of Accounting and Public Policy; JAR: Journal of Accounting Research; JBE: Journal of Business Ethics; MR: Management Research; JAM: Journal of the Iberoamerican Academy of Management; RC: Revista de Contabilidad; SJFA: Spanish Journal of Finance and Accounting; WP: Working Paper.

TABLE 2.3: Number of Studies and Effect Sizes per Country

Country	Studies	Effect Sizes
Germany	2	45
Japan	2	45
South Korea	2	40
Thailand	1	35
Spain	2	20
United States	4	20
Mixed Countries	3	18
Australia	3	16
Saudi Arabia	1	12
United Kingdom	1	12
France	1	8
India	2	8
China	2	6
Malaysia	3	4
Hong Kong	1	4
Bangladesh	1	3
Taiwan	1	3
Italy	2	2
Turkey	1	2
Iran	1	1
Indonesia	1	1

TABLE 2.4: Number of Studies and Effect Sizes Started and Ended per Year

Year	Samples Started	Samples Ended	Effect Sizes Started	Effect Sizes Ended
1993	1		2	
1994	3		17	
1995	1		1	
1997	1		6	
1998	3		46	
1999	1	1	2	4
2000	2	1	11	4
2001	2	3	6	15
2002	3	3	8	10
2003	4	2	20	2
2004	2	3	28	13
2005	1	5	35	17
2006	9	2	103	36
2008	3	5	19	113
2009	1	3	1	24
2010		4		16
2011		2		25
2012		2		20
2013		1		6

TABLE 2.5: Univariate Meta-Analysis of r_{xyz} - and r -based Effect Sizes

Predictor	HOMA Meta-Analytic Results													
	Partial linear correlation coefficient (r_{xyz})							Pearson product-moment correlation (r)						
	k	Mean	SE	CI 95%	Q test	I2	k	Mean	SE	CI 95%	Q test	I2		
Family Firm on Earnings Management	229	-0.02 *	0.00	-0.03 -0.01	1181.1 (0.00)	86.0	76	0.01	0.01	-0.01 0.02	955.9 (0.00)	95.2		
Family Owned	132	-0.02 *	0.01	-0.03 -0.01	549.7 (0.00)	84.6	42	-0.01	0.01	-0.04 0.01	571.0 (0.00)	95.4		
Family Owned + Board-seat	15	-0.03	0.02	-0.07 0.02	119.0 (0.00)	93.5	8	-0.03	0.04	-0.11 0.05	51.5 (0.00)	94.7		
Family Owned + Management	82	-0.02 *	0.01	-0.03 -0.01	504.8 (0.00)	86.2	26	0.04 *	0.01	0.02 0.06	297.2 (0.00)	91.0		
Real-activity based Earnings Management	42	-0.03 *	0.00	-0.03 -0.02	160.4 (0.00)	69.0	13	-0.02	0.01	-0.04 0.01	321.3 (0.00)	96.4		
Accrual based Earnings Management	187	-0.02 *	0.00	-0.03 -0.01	1020.1 (0.00)	87.6	63	0.01	0.01	-0.01 0.03	567.5 (0.00)	94.3		
Jones Model	28	0.00	0.02	-0.04 0.03	127.6 (0.00)	86.5	4	0.00	0.05	-0.10 0.10	23.8 (0.00)	89.1		
Modified Jones Model	64	0.00	0.01	-0.02 0.01	222.3 (0.00)	79.2	28	0.02	0.01	0.00 0.05	288.0 (0.00)	94.0		
Dechow Dichev Model	36	-0.05 *	0.01	-0.06 -0.04	176.7 (0.00)	80.0	3	-0.11 *	0.05	-0.20 -0.01	6.8 (0.03)	81.7		
Kothari Leone Wasley Model	39	0.00	0.01	-0.02 0.02	144.0 (0.00)	83.4	15	0.04 *	0.01	0.03 0.06	29.5 (0.01)	34.5		
Francis et al. Model	11	-0.11 *	0.01	-0.14 -0.09	4.7 (0.91)	0.0	6	-0.10 *	0.02	-0.14 -0.06	5.0 (0.42)	0.1		
Other Accrual Models	9	0.01	0.03	-0.06 0.07	73.3 (0.00)	97.8	7	0.03	0.04	-0.04 0.11	114.7 (0.00)	98.1		
Increasing Accruals	16	-0.03	0.01	-0.05 0.00	21.4 (0.12)	23.1								
Decreasing Accruals	16	0.09 *	0.01	0.06 0.12	22.2 (0.10)	28.0								
Public Company	222	-0.02 *	0.00	-0.03 -0.01	1151.2 (0.00)	86.2								
Private Company	7	-0.01	0.01	-0.04 0.01	29.7 (0.00)	80.8								
Published Study	89	-0.03 *	0.00	-0.04 -0.02	348.9 (0.00)	75.4	16	-0.01	0.02	-0.05 0.04	155.7 (0.00)	93.5		
Unpublished Study	140	-0.01 *	0.01	-0.02 0.00	802.4 (0.00)	89.5	60	0.01	0.01	-0.01 0.03	780.8 (0.00)	95.3		
Endogeneity Control [y]	62	-0.04 *	0.00	-0.04 -0.03	116.9 (0.00)	46.5								
Endogeneity Control [n]	167	-0.01	0.01	-0.02 0.00	972.0 (0.00)	90.0								

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level. k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I2 = percentage amount of unexplained heterogeneity.

TABLE 2.6: HOMA Effect Size per Country

HOMA Meta-Analytic Results per Country									
Partial linear correlation coefficient (r_{xyx}) and Pearson product-moment correlation (r)									
Country	k	Mean		SE	CI 95%		Q test		I2
Germany	45	-0.04 *		0.00	-0.04	-0.03	64.80	(0.02)	0.40
Japan	45	-0.01		0.01	-0.02	0.01	858.50	(0.00)	95.10
South Korea	40	0.03 *		0.01	0.01	0.04	147.80	(0.00)	86.20
Thailand	35	0.00		0.01	-0.03	0.02	118.30	(0.00)	74.40
Spain	20	-0.03 *		0.01	-0.05	0.00	59.30	(0.00)	71.30
United States	20	-0.05 *		0.01	-0.07	-0.04	83.40	(0.00)	76.70
Mixed	18	-0.01		0.01	-0.02	0.00	33.90	(0.01)	49.00
Australia	16	-0.08 *		0.01	-0.11	-0.06	8.50	(0.90)	0.00
Saudi Arabia	12	0.09 *		0.02	0.06	0.13	1.00	(1.00)	0.00
United Kingdom	12	0.00		0.02	-0.04	0.04	44.50	(0.00)	75.70
France	8	-0.01		0.02	-0.06	0.03	31.60	(0.00)	77.80
India	8	-0.02		0.06	-0.13	0.08	56.90	(0.00)	94.80
China	6	0.03 *		0.01	0.01	0.04	2.60	(0.76)	0.00
Malaysia	4	-0.08		0.08	-0.24	0.09	21.20	(0.00)	86.00
Hong Kong	4	-0.07 *		0.03	-0.13	-0.01	1.10	(0.78)	0.00
Bangladesh	3	-0.03		0.09	-0.21	0.15	32.60	(0.00)	93.90
Taiwan	3	0.08 *		0.02	0.04	0.12	6.00	(0.05)	66.60
Italy	2	-0.01		0.10	-0.21	0.19	12.00	(0.00)	91.70
Turkey	2	-0.07		0.08	-0.23	0.10	5.80	(0.02)	82.70
Iran	1	0.02		0.10	-0.18	0.22	0.00	(1.00)	n.a
Indonesia	1	0.23 *		0.04	0.15	0.32	0.00	(1.00)	n.a

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level. k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I2 = percentage amount of unexplained heterogeneity

TABLE 2.7: HOMA Effect Size Development Over Time

HOMA Effect Size Development Over Time									
Partial linear correlation coefficient (r_{xyz}) and Pearson product-moment coefficient (r)									
Years	k	Mean	*	SE	CI 95%		Q test		I2
1997	4	-0.08	*	0.02	-0.12	-0.05	0.9	(0.82)	0.0
1998	15	-0.04	*	0.02	-0.07	0.00	120.5	(0.00)	93.8
1999	4	-0.07	*	0.03	-0.13	-0.01	1.1	(0.78)	0.0
2000	9	-0.07	*	0.03	-0.12	-0.01	13.3	(0.10)	45.2
2001	305	-0.01	*	0.00	-0.02	-0.01	2386.5	(0.00)	90.9
2002	2	-0.21	*	0.04	-0.30	-0.13	0.1	(0.72)	0.0
2003	54	-0.04	*	0.01	-0.05	-0.03	209.8	(0.00)	78.1
2004	12	-0.05	*	0.03	-0.10	0.00	83.6	(0.00)	91.5
2005	4	0.06	*	0.01	0.03	0.09	1.0	(0.79)	0.0
2006	45	-0.01		0.01	-0.03	0.01	154.6	(0.00)	74.8
2007	58	0.02	*	0.01	0.01	0.03	791.4	(0.00)	91.9
2008	80	0.00		0.01	-0.01	0.01	545.1	(0.00)	87.3
2009	7	-0.04		0.03	-0.11	0.02	32.2	(0.00)	84.3
2010	5	0.00		0.04	-0.08	0.07	25.8	(0.00)	84.5
2011	6	-0.01		0.01	-0.03	0.01	20.1	(0.00)	83.1

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level. k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I2 = percentage amount of unexplained heterogeneity

TABLE 2.8: HOMA Effect Size per Study

HOMA Effect size per Study									
Partial linear correlation coefficient (rxyz) and Pearson product-moment coefficient (r)									
Study	Year	k	Mean	SE	CI 95%			Q-test	I2
Achleitner et al.	2014	40	-0.04 *	0.00	-0.04	-0.03	32.8	(0.8)	0.0
Kiatapiwat	2010	35	0.00	0.01	-0.03	0.02	118.3	(0.0)	74.4
Koh and Lee	2008	32	0.05 *	0.00	0.04	0.06	32.4	(0.4)	4.3
Ebihara et al.	2013	25	-0.01	0.01	-0.03	0.00	460.3	(0.0)	94.8
Chen et al.	2014	20	0.00	0.01	-0.01	0.02	364.3	(0.0)	94.8
Soler Vila	2013	14	-0.02	0.01	-0.04	0.01	45.9	(0.0)	74.5
Alghamdi	2012	12	0.09 *	0.02	0.06	0.13	1.0	(1.0)	0.0
Paiva and Lourenco	2013	12	0.00	0.02	-0.04	0.04	44.5	(0.0)	75.7
Wang	2006	12	-0.06 *	0.01	-0.08	-0.04	40.3	(0.0)	72.7
Gonzalez and Garcia-Meca	2014	11	-0.02 *	0.01	-0.03	0.00	1.7	(1.0)	0.0
An	2009	8	-0.12 *	0.02	-0.15	-0.09	3.4	(0.9)	0.0
Johl et al.	2010	8	-0.08 *	0.02	-0.12	-0.05	2.3	(0.9)	0.0
Mard and Marsat	2012	8	-0.01	0.02	-0.06	0.03	31.6	(0.0)	77.8
Bona Sanchez et al.	2007	6	-0.15 *	0.04	-0.23	-0.06	4.3	(0.5)	0.0
Hasso	2013	6	-0.10 *	0.02	-0.14	-0.07	3.2	(0.7)	0.0
Jaiswall and Banerjee	2012	6	-0.06 *	0.03	-0.12	-0.01	23.6	(0.0)	78.8
Jara Bertin and Lopez Iturriaga	2014	6	-0.01	0.01	-0.03	0.01	20.1	(0.0)	83.1
Lamerikx	2012	5	0.00	0.04	-0.08	0.07	25.8	(0.0)	84.5
Jaggi et al.	2009	4	-0.07 *	0.03	-0.13	-0.01	1.1	(0.8)	0.0
Jiraporn and DaDalt	2009	4	-0.08 *	0.02	-0.12	-0.05	0.9	(0.8)	0.0
Chi et al.	2014	3	0.08 *	0.02	0.04	0.12	6.0	(0.1)	66.6
Ding et al.	2011	3	0.05 *	0.02	0.02	0.08	0.1	(0.9)	0.0
Houqe et al.	2010	3	-0.03	0.09	-0.21	0.15	32.6	(0.0)	93.9
Ye et al.	2010	3	0.02 *	0.01	0.01	0.04	0.0	(1.0)	0.0
Adiguelzel	2013	2	-0.07	0.08	-0.23	0.10	5.8	(0.0)	82.7
Desai et al.	2012	2	0.13	0.27	-0.40	0.65	22.6	(0.0)	95.6
Hashim and Devi	2008	2	-0.21 *	0.04	-0.30	-0.13	0.1	(0.7)	0.0
Tong	2007	2	0.00	0.05	-0.09	0.09	12.6	(0.0)	92.1
Yupitun	2008	2	-0.06 *	0.02	-0.10	-0.02	0.0	(1.0)	0.0
Ali et al.	2007	2	-0.03	0.02	-0.07	0.02	1.9	(0.2)	46.7
Barrios and Macciocchi	2014	1	0.09 *	0.03	0.03	0.15	0.0	(1.0)	n.a
Ishak et al.	2011	1	0.13 *	0.07	0.00	0.26	0.0	(1.0)	n.a
Madani et al.	2013	1	0.02	0.10	-0.18	0.22	0.0	(1.0)	n.a
Munir et al.	2013	1	-0.01	0.07	-0.14	0.11	0.0	(1.0)	n.a
Rifi	2010	1	0.09 *	0.04	0.02	0.16	0.0	(1.0)	n.a
Siregar and Utama	2008	1	0.23 *	0.04	0.15	0.32	0.0	(1.0)	n.a
Tiscini and Di Donato	2012	1	-0.12 *	0.05	-0.22	-0.02	0.0	(1.0)	n.a

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level.
k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I2 = percentage amount of unexplained heterogeneity

TABLE 2.9: Meta-regression results

Variables	MARA	KNHA	MONTE-CARLO	HLM	GTS
Constant	0.2583 (0.077) ***	0.2583 (0.089) ***	0.2583 (0.077) ***	0.2810 (0.105) ***	0.2545 (0.039) ***
Meta-Analysis specific controls					
# of predictors in original sample	0.0043 (0.001) ***	0.0043 (0.001) ***	0.0043 (0.001) ***	0.0044 (0.001) ***	0.0049 (0.001) ***
Controlled for Endogeneity	-0.0320 (0.012) ***	-0.0320 (0.014) **	-0.0320 (0.012) **	-0.0195 (0.012) **	-0.0323 (0.007) ***
Median Sample Year of Study	0.0001 (0.002) ***	0.0001 (0.002) ***	0.0001 (0.002) ***	0.0001 (0.003) ***	0.0001 (0.003) ***
Published Study	-0.0266 (0.011) **	-0.0266 (0.013) **	-0.0266 (0.011) **	-0.0417 (0.018) **	-0.0175 (0.007) **
Institutional Factors					
Degree of Minority Protection	-0.0082 (0.006) ***	-0.0082 (0.007) ***	-0.0082 (0.006) ***	-0.0129 (0.009) ***	-0.0037 (0.001) ***
Degree of Voluntary Disclosure	-0.0033 (0.001) ***	-0.0033 (0.001) ***	-0.0033 (0.001) ***	-0.0029 (0.001) ***	-0.0037 (0.001) ***
ln(GDP per capita)	0.0012 (0.002) ***	0.0012 (0.002) ***	0.0012 (0.002) ***	-0.0006 (0.004) ***	-0.0006 (0.004) ***
Common Set of Control Variables					
Size	-0.0050 (0.021) ***	-0.0050 (0.025) ***	-0.0050 (0.021) ***	-0.0400 (0.030) ***	-0.0400 (0.030) ***
Leverage	0.0216 (0.022) ***	0.0216 (0.025) ***	0.0216 (0.022) ***	0.0784 (0.033) **	0.0784 (0.033) **
Loss	-0.0038 (0.019) ***	-0.0038 (0.022) ***	-0.0038 (0.019) ***	-0.0046 (0.026) **	-0.0046 (0.026) **
Performance	-0.0039 (0.014) **	-0.0039 (0.016) **	-0.0039 (0.014) **	-0.0186 (0.019) **	-0.0186 (0.019) **
Age	-0.0366 (0.015) ***	-0.0366 (0.017) **	-0.0366 (0.015) **	-0.0560 (0.022) **	-0.0244 (0.008) ***
Growth	0.0185 (0.025) ***	0.0185 (0.030) ***	0.0185 (0.025) ***	0.0590 (0.037) ***	0.0590 (0.037) ***
Industry Competitiveness	-0.0836 (0.017) ***	-0.0836 (0.020) ***	-0.0836 (0.017) ***	-0.0767 (0.023) ***	-0.0640 (0.009) ***
Big Four Auditor	-0.0395 (0.015) ***	-0.0395 (0.017) **	-0.0395 (0.015) **	-0.0542 (0.019) ***	-0.0291 (0.007) ***
Block Ownership	0.0382 (0.018) **	0.0382 (0.021) *	0.0382 (0.018) *	0.0656 (0.028) **	0.0156 (0.009) *
Foreign Ownership	-0.0665 (0.027) **	-0.0665 (0.031) **	-0.0665 (0.027) **	-0.0841 (0.035) **	-0.0831 (0.018) ***
Independent Variable characteristics					
Family Management	0.0004 (0.005) ***	0.0004 (0.006) ***	0.0004 (0.005) ***	-0.0035 (0.006) ***	-0.0035 (0.006) ***
Family Board	-0.0148 (0.011) ***	-0.0148 (0.013) ***	-0.0148 (0.011) ***	-0.0146 (0.012) ***	-0.0146 (0.012) ***
Dependent Variable characteristics					
Real Earnings Management	-0.0008 (0.015) ***	-0.0008 (0.017) ***	-0.0008 (0.015) ***	-0.0060 (0.015) ***	-0.0060 (0.015) ***
Modified Jones	0.0134 (0.013) ***	0.0134 (0.015) ***	0.0134 (0.013) ***	0.0044 (0.013) ***	0.0044 (0.013) ***
Dechow Dichev	-0.0011 (0.014) ***	-0.0011 (0.016) ***	-0.0011 (0.014) ***	-0.0094 (0.014) ***	-0.0094 (0.014) ***
Kothari et al.	0.0080 (0.014) ***	0.0080 (0.017) ***	0.0080 (0.014) ***	-0.0024 (0.015) ***	-0.0024 (0.015) ***
Francis et al.	-0.0930 (0.022) ***	-0.0930 (0.026) ***	-0.0930 (0.022) ***	-0.0813 (0.031) ***	-0.0959 (0.018) ***
Accruals Other	0.0183 (0.016) ***	0.0183 (0.018) ***	0.0183 (0.016) ***	0.0084 (0.016) ***	0.0084 (0.016) ***
Increasing Accruals	0.0340 (0.017) **	0.0340 (0.020) *	0.0340 (0.017) *	0.0433 (0.017) **	0.0310 (0.016) *
Decreasing Accruals	0.1589 (0.017) ***	0.1589 (0.020) ***	0.1589 (0.017) ***	0.1681 (0.017) ***	0.1560 (0.016) ***
Model Fit Statistics					
pseudo R2	82.5%	82.5%	82.5%	89.2%	81.8%
I2	49.2%	49.2%	49.2%	49.2%	51.1%
K	210	210	210	210	210
Q-model(p)	335.23 (0.000)	335.23 (0.000)	335.23 (0.001)	169.11 (0.000)	312.81 (0.000)
Q-residual(p) / F-Test	447.05 (0.000)	9.19 (0.000)	447.05 (0.001)	447.05 (0.000)	476.37 (0.000)
V	0.0187	0.0187	0.0187	0.0177	0.0191

Regression coefficients are presented with standard errors in parentheses. k is the total number of effect sizes; Q is the chi-square test for homogeneity with its probability in parentheses; V is the random effects variance component. p < 0.1 * p < 0.05 ** p < 0.01. ***

TABLE 2.10: Robustness Checks for Meta-regression results

Variables	Published	Working Papers	Accrual-EM based	Real-EM based	No Mixed Countries
Constant	0.2936 (0.203)	0.1787 (0.187)	0.2685 (0.086)	-0.0354 (0.008)	0.1242 (0.069)
Meta-Analysis specific controls					
# of predictors in original sample	0.0034 (0.001)	0.0081 (0.006)	0.0042 (0.001)	0.0045 (0.001)	0.0045 (0.001)
Controlled for Endogeneity	0.0011 (0.035)	-0.0033 (0.016)	-0.0303 (0.014)	0.0007 (0.002)	-0.0153 (0.012)
Median Sample Year of Study	0.0222 (0.008)	0.0101 (0.006)	0.0007 (0.002)	0.0007 (0.002)	0.0043 (0.002)
Published Study			-0.0323 (0.013)		
Institutional Factors					
Degree of Minority Protection	-0.1080 (0.048)	-0.0150 (0.010)	-0.0084 (0.007)	-0.0084 (0.007)	-0.0075 (0.006)
Degree of Voluntary Disclosure	-0.0095 (0.009)	-0.0030 (0.002)	-0.0034 (0.001)	-0.0034 (0.001)	-0.0029 (0.001)
ln(GDP per capita)	0.0573 (0.050)	0.0064 (0.004)	0.0002 (0.002)	0.0002 (0.002)	0.0040 (0.002)
Common Set of Control Variables					
Size	-0.6902 (0.158)	-0.0478 (0.054)	-0.0011 (0.025)	-0.0526 (0.014)	0.0309 (0.023)
Leverage	0.8052 (0.236)	0.1040 (0.051)	0.0296 (0.024)	0.0454 (0.010)	-0.0126 (0.022)
Loss	-0.0041 (0.040)	0.0456 (0.051)	-0.0052 (0.021)		-0.0337 (0.020)
Performance	0.0268 (0.035)	-0.0659 (0.047)	-0.0065 (0.015)		0.0154 (0.014)
Age	-0.1860 (0.102)	-0.1522 (0.033)	-0.0369 (0.017)		-0.0171 (0.015)
Growth	-0.2687 (0.252)	0.0226 (0.028)	0.0226 (0.028)		0.3902 (0.086)
Industry Competitiveness	0.0259 (0.048)	-0.1408 (0.037)	-0.0873 (0.019)		-0.0914 (0.018)
Big Four Auditor	-0.0184 (0.027)	-0.0407 (0.031)	-0.0398 (0.016)	0.0131 (0.014)	-0.0127 (0.016)
Block Ownership	0.0460 (0.097)	0.0256 (0.000)	0.0256 (0.023)		0.0005 (0.019)
Foreign Ownership		-0.1242 (0.113)	-0.0669 (0.029)		-0.0779 (0.028)
Independent Variable characteristics					
Family Management	-0.0047 (0.005)	-0.0077 (0.010)	0.0043 (0.008)	-0.0052 (0.007)	0.0001 (0.006)
Family Board	0.0404 (0.107)	-0.0203 (0.015)	-0.0141 (0.013)	0.0373 (0.022)	-0.0125 (0.012)
Dependent Variable characteristics					
Real Earnings Management	0.0129 (0.008)	-0.0280 (0.022)	0.0123 (0.014)		0.0025 (0.015)
Modified Jones	-0.0032 (0.026)	-0.0127 (0.019)	0.0018 (0.014)		0.0138 (0.014)
Dechow Dichev		-0.0221 (0.020)	0.0049 (0.015)		-0.0007 (0.014)
Kothari et al.	-0.0107 (0.025)	-0.0152 (0.023)	0.0049 (0.015)		0.0076 (0.015)
Francis et al.		-0.1240 (0.049)	-0.0896 (0.024)		-0.0825 (0.023)
Accruals Other	-0.0069 (0.028)	-0.0104 (0.023)	0.0191 (0.017)		0.0149 (0.017)
Increasing Accruals	0.0415 (0.032)	0.0575 (0.021)	0.0345 (0.018)		0.0326 (0.017)
Decreasing Accruals	0.1854 (0.032)	0.1748 (0.021)	0.1594 (0.017)		0.1575 (0.017)
Model Fit Statistics					
pseudo R2	100.0%	84.9%	83.1%	64.5%	84.8%
I2	0.0%	54.1%	51.4%	43.6%	48.0%
k	82	128	168	42	194
Q-model(p)	217.19 (0.000)	241.44 (0.000)	287.05 (0.000)	33.15 (0.000)	353.43 (0.000)
Q-residual(p)	63.13 (0.300)	284.51 (0.000)	356.63 (0.000)	78.50 (0.000)	401.58 (0.000)
V	0.0000	0.0210	0.0214	0.0134	0.0185

Regression coefficients are presented with standard errors in parentheses. k is the total number of effect sizes; Q is the chi-square test for homogeneity with its probability in parentheses; V is the random effects variance component. p < 0.1 * p < 0.05 ** p < 0.01. ***

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Chapter 3

Do Institutional Owners Deter Earnings Management? A Meta-Analysis

¹**Abstract:** This study investigates the relation between institutional ownership and earnings management by meta-analyzing 511 effect sizes, nested in 87 primary studies. We find that on average the relation between institutional ownership and earnings management is slightly negative, with a mean effect size of -0.02 ($p < 0.001$) indicating that there is evidence to suggest that institutional owners deter earnings management. However, we find that much of the variation in effect sizes can be explained by the operationalization of earnings management, the operationalization of institutional ownership, the inclusion of firm specific control variables, the empirical design of primary studies as well as the country specific institutional setting, that the primary studies drew their sample from.

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3.1 Introduction

Institutional owners have for a long time been under the public scrutiny and their role in corporate governance has been widely debated among scholars and the media (Bushee and Abarbanell 1998; Koh 2003). Many consider institutional owners to be responsible for managerial short-termism and the earnings management that goes along with it (Black and Coffee 1994), whereas others believe that institutional owners are usually more active in firm governance and may thus deter any opportunistic management behaviour (Bushee and Abarbanell 1998; Rajgopal et al. 1999). In response to these debates scholars have attempted to establish whether institutional ownership leads to more or less earnings management. However, after about two decades of research into the relationship between institutional ownership and earnings management it is hard to reach any form of conclusion with respect to the overall relationship. That is, even though researchers put forth sound theoretical arguments for the size and direction of the effect of institutional ownership on earnings management, there is no conclusive empirical evidence. Most of the empirical studies arrive at conflicting conclusions, which makes it difficult for regulators and practitioners to make evidence-based decisions.

In our study we synthesize the existing research in the area of institutional ownership and earnings management by performing a meta-analysis on 511 effect sizes drawn from 87 primary studies. A particular focus of our meta-analysis is the attempt to explain the large variation in the effect sizes between studies by looking at potential moderators for the effect sizes, such as different operationalization of institutional ownership, earnings management model used, study-design specifics and the particular institutional setting the primary study is based on. We find that while the relationship between institutional ownership and earnings management appears to be well researched, the various nuances between the studies make it difficult to draw conclusions from single studies. We found myriad ways to define institutional ownership, ranging from a simple dummy indicating institutional ownership versus the exact percentage of institutional ownership, to a very detailed look at either the type of institutions, or the level of involvement of institutional owners. On the other side of the equation we also found big variation in the use of earnings management proxies. While most of the studies used either the original (Jones 1991), the modified Jones (Dechow et al. 1995) or a performance-adjusted Model (Kothari et al. 2005), we found more than 15 different earnings management proxies across our dataset.

To address this confusion, we use meta-analysis to see whether these choices by researchers are driving results. As we use a sample of 87 primary studies nested in 26 countries we are also able to explore the institutional effect upon the relationship. We find that the degree of investor protection plays an important role in explaining variations in the relationship between institutional ownership and earnings management.

We contribute to the existing literature by using an empirical approach to synthesize prior work. Single studies are not able to provide us with conclusive evidence, and consequently, we use a meta-analysis to attempt to find an overarching pattern (Ringquist 2013). We use state of the art meta-analytic techniques that allow us to use multiple effect sizes from each study and thus give us the ability to not only explain between-study variation but also within study variation (Feld et al. 2013). Thus, we make several important contributions to the accounting literature.

First, our paper shows study design choices are the primary determinant of the observed effects of institutional owners on a firm's earnings management practices in primary studies. Second, building on this contribution the paper shows that especially how accounting scholars measure the relevant constructs of ownership and earnings management is relevant. Here the findings are in line with theory, that a) short-term owners have larger incentives for their portfolio companies to show the best possible earnings figures (Bushee and Abarbanell 1998; Graham et al. 2005; Bowen et al. 2008) and b) that the underlying theory of how accruals are modeled after matters. Using the modified Jones model (Dechow et al. 1995) or related approaches, that model accruals based on revenue and property plant and equipment show significantly stronger relations between ownership and earnings management compared to the Dechow and Dichev (2002) approach, modeling accruals based on past, present and future cash flows from operations. To see this systematic difference across 87 studies is a good starting off point for future research to investigate if institutional owners prefer managers manipulating long-term accruals over short-term operative cash flow figures.

Last, our study contributes, through trying to establish meta-analysis, particularly advanced meta-regression methods, as a new methodology in the financial reporting quality literature. There is one existing meta-analysis studying a wide variety of corporate governance variables and their relation to earnings management (Garcia-Meca and Sanchez-Ballesta 2009).

However, our study substantially increases the number of studies investigated (from 35 to 87 studies), and focuses the analysis on one specific issue, namely how institutional owners differ within their subset and compared to non-institutional owners regarding a firm's earnings management behavior. Compared to existing meta-analysis in accounting, our study uses the recent advances in meta-methodology and is among the first² to employ meta-regression techniques. Compared to prior meta-analysis, which investigated potential moderators individually, meta-regression is more robust regarding potential omitted-variable bias and confounding variables (Viechtbauer 2007; Steel and Kammeyer-Mueller 2002).

The paper is structured as follows. First, we provide the theoretical background for the link between institutional ownership and earnings management. We also discuss potential moderators of this relationship. We then describe the meta-analytic procedure followed by the presentation of our main results. We conclude by discussing our findings in light of our expectations and outline future research avenues.

3.2 Hypothesis Development

There is considerable prior work, both theoretical and empirical, on the relationship between institutional ownership and earnings management. To a large extent the theoretical relationship is captured by two opposing arguments, namely 1) that the presence of institutional investors increases incentives to manage earnings or 2) that the presence of institutional investors decreases incentives to manage earnings.

The strand of literature arguing that institutional investors increase earnings management states that, institutional investors are mainly short-term focused as they base their stock valuation on current and near-term earnings (Bushee and Abarbanell 1998; Porter 1992). Pound and Shiller (1987) as well as Lang and McNichols (1997) found that institutional investors use earnings under-performance as a sell signal. In a later study, Bushee (2001) showed that a trading strategy based on such a mis-valuation of stocks that had disappointing short-term earnings can generate significant abnormal returns. Further, as institutional investors manage "other people's money" they operate within a continuous performance evaluation loop, leading them to rotate in and out of winning/losing stocks on a regular basis (Black and Coffee

²Hay and Knechel (2017) being another meta-regression study in the auditing literature

1994). Such short-term investing horizons reduce the incentive to build up monitoring capabilities for a single firm, as the monitoring costs would occur immediately, while the monitoring benefits could only be reaped over the long term (Porter 1992). Apart from the incentive structure favoring a near-term orientation for investors, researchers also found that this behavior spills over to managers. Koh (2003), Graves and Waddock (1990) and Stapledon (1996) among others have found that managers have a tendency to manage earnings upwards due to the short-term focus of institutional investors. Furthermore, managers' compensation packages are generally tied to firm performance (and thus earnings). A reduction in cash salaries as well as higher job uncertainty for C-level executives (Fama 1980; Puffer and Weintrop 1991) in times of decreasing earnings are strong incentives for managers to keep showing positive and growing earnings figures (Burgstahler and Dichev 1997).

The strand of literature arguing that institutional investors decrease earnings management states that, as institutional investors have large amounts of capital at their disposal, they own bigger chunks of a company at any given point in time than other investors. This potential concentration of ownership on a few large shareholders is beneficial as it reduces agency costs associated with the separation of ownership and control (Bushee and Abarbanell 1998; Rajgopal et al. 1999). Here, three main reasons support the view that institutional investors may constrain earnings management.

First, institutional shareholders with their large block of ownership stand to lose substantially more of their total wealth compared to minority shareholders if they are less informed about the firm's true, i.e. non earnings-managed, performance (Pound 1992).

Second, if institutional investors want to sell a large block of shares, a steep discount is usually attached to this trade, making it more expensive to view ownership as a mere transaction and not as a relationship (Black and Coffee 1994; Jiambalvo et al. 2002).

Third, Koh (2003) argues that it is possible for institutional investors to group together and share monitoring costs. With lower per-institution costs, the option to monitor becomes more profitable and would incentivize institutional investors towards longer holding periods where near-term earnings are of lesser concern.

On the managerial side Dechow, Sloan, and Sweeney (1995) found that managers report less aggressive if there are large outside shareholders in the company. Specifically the pressure to upward manipulate earnings is constrained by actively involved institutional owners (Cheng and Reitenga 2009).

As the prior research provides both theoretical arguments and empirical evidence for a negative as well as a positive effect we use a non-directional hypothesis to capture the general relationship between institutional ownership and earnings management.

HYPOTHESIS 1: There is a relationship between institutional ownership and earnings management.

3.2.1 Moderating Effects

While studies may find an effect between institutional ownership and earnings management in general, we argue that this relationship is heavily influenced by certain study-design choices. The potential moderators in our meta-analysis include the operationalization of institutional ownership, the operationalization of earnings management, the inclusion of certain firm-specific control variables and the institutional setting.

Operationalization of Institutional Ownership There is considerable variation in prior work with respect to the operationalization of institutional ownership. While, the basic notion is that institutional ownership can be defined as the percentage of ownership held by institutions, this definition can be further specified depending on the study. Researchers may choose to delineate institutional investors along investment horizon (transient versus non-transient) (Koh 2003), level of involvement (active versus passive) (Bushee 1998), and size of stock-holdings dimension, among a multitude of potential differences. The measurement may also differ as some studies use percentage of ownership whereas others merely use a dummy coding if institutional ownership exceeds a certain percentage. These alternative operationalizations make it difficult to compare prior research. Especially when some of the choices strike at the heart of the arguments for either a negative or positive relationship between institutional ownership and earnings management. We thus hypothesize that the operationalization of institutional ownership will moderate its relationship to earnings management.

HYPOTHESIS 2: The operationalization of institutional ownership moderates the relationship between institutional ownership and earnings management.

Operationalization of Earnings Management The challenge in recognizing managers that manage earnings is that one cannot just look at the financial statements of a company and find instances of earnings management. Thus there is a need to proxy earnings management and to come up with a model that disentangles true earnings from managed earnings. Over time many different models have been developed to get to the most accurate earnings management number. Our dataset of primary studies reflects this reality well, as 87 primary studies used over 15 different approaches to measure earnings management. The heterogeneity in model choice is due to three factors. First, there is the distinction between accruals based earnings management and real earnings management. While real earnings management is due to manager's investment or production decisions that occur before earnings are realized, accrual based earnings management arises through specific accounting choices managers take to move earnings along their preferred time frame (Roychowdhury 2006). Second, there is a lot of variation in which specific model is employed to detect real and accrual based earnings management. Three models can be considered as de-facto standard, to detect firms using their discretionary leeway in accounting. The original Jones (1991) model, the modified Jones model incorporating sales-based manipulations (Dechow et al. 1995), and several models that control for differences in firm performance, with the model from Kothari, Leone, and Wasley (2005) as the most prominent one. For real earnings management, researchers typically look at abnormal levels of either (1) discretionary cash flow from operations, (2) discretionary expenses, (3) production costs and (4) research and development expenditures (Roychowdhury 2006).

A further source of variation in real earnings management studies is that researchers in general pick and choose whether they focus on one or multiple measures and whether or not they should combine all measures into an aggregate one. As there are too few primary studies in our dataset that focus on detailed differences within real earnings management, we only investigate the difference in operational or accounting based earnings management, but not the difference within operational based earnings. Third, there is no consensus to use absolute abnormal accruals or signed abnormal accruals. Previous meta-analysis showed that it might be useful to investigate the difference of the exact sign of the dependent variable measures (Garcia-

Meca and Sanchez-Ballesta 2009) as it gives the meta-analytic researcher the opportunity to look even closer at what really drives earnings management. Even though our dataset mainly consists of studies using absolute abnormal accruals, we investigate if there is a possible moderating effect of the particular direction of earnings management. Thus we hypothesize:

HYPOTHESIS 3: The specific focus on earnings management (operating or accounting based) moderates the relationship between institutional ownership and earnings management.

HYPOTHESIS 4: The specific model of accruals based earnings management moderates the relationship between institutional ownership and earnings management.

HYPOTHESIS 5: The sign of the earnings management model (absolute values versus directional values) moderates the relationship between institutional ownership and earnings management.

Institutional Characteristics One of the main benefits of conducting a meta-analysis is that we can focus on factors influencing the relationship of interest that single study researchers can not examine. One large and potentially impactful area of these factors are different institutional characteristics. These institutional characteristics are likely to be stable over time but different from country to country (Heugens et al. 2003; Heugens and Otten 2007) and are the basis of several different ‘varieties of capitalism’ (Hall and Soskice 2001) that shape how business is done across the globe. At the intersection between law and finance research there is vital interest in how legal institutions impact the relationship between corporate insiders (managers and majority owners) and outsiders (non controlling owners and other stakeholders). Here the common theme is that corporate insiders conceal the true value of the firm to be able to expropriate part of that value for their own good. In a well functioning legal system corporate outsiders are protected from such expropriation by managers, by assigning them rights to discipline insiders as well as the ability to enforce those rights (An et al. 2016; Claessens et al. 2002; Dyck and Zingales 2004; La Porta et al. 1998; Leuz et al. 2003; Shen and Chih 2005). Prior research suggests that there either is a mutually supportive relationship, in which a high degree of institutional ownership combined with strong legal protection leads to a constraining effect on earnings management (Aoki 2001), or that there is a substitute effect, meaning that it is enough to only have institutional owners or only a strong legal environment

present to see a constraining effect on earnings management. Empirical evidence by Leuz et al. (2003) shows that countries with low levels of earnings management also are countries with relatively dispersed ownership, large stock markets in general and strong ownership protection in particular. Thus we hypothesize:

HYPOTHESIS 6: The relationship between earnings management and institutional ownership is negatively moderated by the level of investor protection

3.3 Method

3.3.1 Sample and Coding

To identify the relevant primary studies for our meta-analysis we followed the established guidelines for research in economics and the organizational sciences (Buckley et al. 2007; Kepes et al. 2013; Stanley et al. 2013). First, we looked for papers in all major databases: (1) ISI Web of Science, (2) Business Source Complete, (3) EconLit, (4) JSTOR, (5) Scopus/Elsevier, (6) Google Scholar via PublishOrPerish Software, (7) SSRN, and (8) ProQuest. We used the following search terms: “earnings management” OR “earnings quality” OR “discretionary accruals” OR “financial reporting quality” and required the search to also contain results for one of the following terms: “ownership” OR “fund” OR “bank” OR “insurance” OR “endowment” OR “professional”.

This search resulted in 1,759 potentially relevant studies. Going through each abstract, we were able to further prune the results to 678 potentially relevant papers. We then excluded all papers that had an English abstract but non-English main body. That left us with 279 papers. A full text search of those 279 papers reduced the sample size to 104 primary studies. We further needed to exclude 10 papers due to the inclusion of interaction terms in their regression and no separate reporting of the main effect of institutional ownership. We also had 7 potentially useful papers that had the relevant effect sizes missing in their tables. Unfortunately, we could not get access to the missing data after contacting the authors. Thus, we arrived at our final sample size of 87 primary studies. The sample selection procedure is pictured in Table 3.1.

Insert Table 3.1 here

We aimed for the most complete data set of primary studies in our meta-analysis, regardless of study quality. Thus, we had no exclusion criteria based on quality indicators of a primary study. Instead we included study design quality features, like whether or not the study addressed endogeneity concerns and we differentiated between published articles, working papers and theses. To make sure that we found every relevant study we also performed a forward and backward search strategy in highly cited papers and literature reviews and/or meta-analytic studies on earnings management. The final sample remained the same. Table 3.2 shows an overview of all primary studies used in our meta-analysis. The following Tables 3.3, 3.4 and 3.5 show overviews for included studies on a per country, per publishing year and per sample year respectively.

Insert Table 3.2 here

Insert Table 3.3 here

Insert Table 3.4 here

Insert Table 3.5 here

Next, we developed a coding sheet (Lipsey et al. 2001, vol. 49; Ringquist 2013) to gather the relevant effect sizes and additional information. To calculate the effect sizes, we used the direct Pearson product-moment correlations between institutional ownership and earnings management as well as the partial correlation coefficients obtained from multiple regression analysis. We computed the partial correlation from multivariate t-statistics and degrees of freedom of the corresponding regression. When t-statistics were not given, we transformed standard errors into r-based effect sizes.³ We also coded detailed information about how institutional ownership is defined and

³We further employ a Fisher's Z transformation of all effect sizes, as suggested by Hedges and Olkin (1985). It is calculated as follows: $z_r = \frac{1}{2} \ln\left(\frac{1+r}{1-r}\right)$, where r is the untransformed (partial) correlation coefficient.

measured, which proxy of earnings management is used. For 71 out of our 87 primary studies we coded multiple effect sizes per study, as those studies estimated multiple regressions with slight variations in specification. In addition to the effect sizes, we also coded information with respect to study design and institutional characteristics of the underlying sample. One author coded all studies. To check coding reliability, a second author coded a subsample of 104 randomly selected primary studies. The chance agreement-corrected measure of inter-rater reliability (Cohen 1960) is 0.98, indicating a very high degree of reliability.

3.3.2 Meta-Analytic Procedure

We employ two common meta-analytic procedures (1) the standard Hedges and Olkin (Hedges and Olkin 1985) (HOMA) approach to compute the overall effect size statistics as well as subgroup analysis and the (2) meta-analytic regression analysis (MARA) following Lipsey and Wilson (2001) to investigate whether the moderating variables identified have an important effect on the results found by authors in primary studies. All analysis were performed with the R package *metafor* (Viechtbauer and Cheung 2010).

HOMA To estimate mean effect sizes and their confidence intervals ($+/- 2SE$ around the mean effect size) we used random-effects HOMA. Random-Effects HOMA is considered more conservative than a fixed-effect approach as it does not assume a common effect size. It rather takes into account the potential effect size heterogeneity between primary studies (Kisamore and Brannick 2008; Raudenbush and Bryk 2002). The random-effects model has another advantage, as it assumes all effects sizes in our meta-analysis were drawn from a random sample of the overall population of all relevant studies, giving the random-effects HOMA results a high degree of external validity (Ringquist 2013). We used Fisher's Z-transformation (Fisher 1970) and the inverse of each studies effect size variance to account for different degrees of precision and potential skewness of effect size distributions (Hedges and Olkin 1985). This procedure follows the guidelines laid out for meta-analytic studies in the organizational sciences (Geyskens et al. 2009).

MARA Lipsey and Wilson (2001) recommend using a meta-analytic regression analysis as a second method because the relationship between institutional ownership and earnings management as found in the basic HOMA analysis might also be influenced by the research design and model specifications of the primary studies as well as institutional effects. MARA is

the meta-analytic equivalent to a multiple, weighted least squares, regression. It uses the observed effect sizes of the relationship of interest (in our case the partial correlation coefficient - Fischer's Z transformed effect size between institutional ownership and earnings management) as the dependent variable and a set of potential moderators (in our case these are the different operationalizations of institutional ownership and earnings management, study characteristics and institutional variables) as independent variables. The independent variable observations are weighted with the inverse variance weight, similar to the HOMA approach, to incorporate the differences in precision contained in them. With MARA we now can account for the random component error as in HOMA plus systematic within- and between-study differences (Lipsey and Wilson 2001).

3.3.3 Analysis / Variables

To test the potential moderating effect of different operationalizations of both institutional ownership and earnings management we included dummy variables that were coded as (1) if the following were included and (0) if not: Institutional ownership as percentage; Institutional Ownership as Dummy; Transient Institutional Ownership; Non-Transient Institutional Ownership; Accrual-based earnings management; Increasing Accruals; Decreasing Accruals; original Jones model; modified Jones model; Kothari et al. model; Dechow and Dichev model; Francis et al. model; Liu and Liu model; other accruals models and real earnings management⁴.

To test the potential moderating effect of different control variables employed in primary studies we included dummy variables that were coded as (1) if the following were included and (0) otherwise: Size; Book-to-Market Ratio; Growth; Leverage Ratio; Loss; Performance; Cash Flow from Operations; Industry competitiveness; Block Ownership; Family Ownership; Insider Ownership; Foreign Ownership; Big Four auditing firm and Board Seats for institutional owners.

To test the potential moderating effect of different study designs employed in primary studies we included dummy variables that were coded as (1) if the following characteristics were present and (0) otherwise: primary study employed a method to counter possible endogeneity concerns (2SLS, GMM,

⁴We also code several other variables, but did not use them in the analysis as the coded characteristics were present in less than five studies

Panel Fixed or Random Effects, Heckman Correction); primary study included a lag of their dependent variable in the regression specification; the number of variables included in the regression; the median sample year of primary studies and a control variable whether or not the primary study had the institutional ownership - earnings management as their main relationship of interest. Further we included a dummy for published studies to check for the 'file drawer problem' (Rosenthal 1979).

Apart from the dummy variables mentioned above we included several potential moderating effects that might be due to differences in the institutional setting of each primary setting. These dummies were coded as (1) if the country scored high in the specific institutional characteristic and (0) otherwise. If a primary study is based on multiple countries a simple average of the relevant scale was used. The ability to check for these institutional differences is one of the unique advantages of meta-analytic research (Carney et al. 2011). As discussed in the hypotheses development section about institutional variables, legal investor protection and the overall strength of the economy are the main moderators that could effect the link between institutional ownership and earnings management. The exact variables used to capture these moderators were: Anti-Director-Dealings Index, Anti-Self Dealing Index, and the natural logarithm of GDP per capital.

Some variation in the relationship between institutional ownership and earnings management might be due to the fact that there is no standard study design for empirical archival accounting research. Whereas some studies employ elaborate identification strategies and put great emphasis on controlling for possible endogeneity problems, other studies might run a simple regression without thinking about the most suitable identification strategy for their variable of interest. Furthermore, it can have a large impact whether or not the authors of the primary studies include the relevant set of control variables in their regression. One can argue about how the relevant set is defined, but factors commonly studied in corporate governance and financial accounting / earnings management literature, such as company size and performance or board composition and audit quality (Dechow et al. 2010), might significantly effect the dependent variable alongside institutional ownership. We include several potential moderating variables in our meta-regression analysis for: study quality as measured by publishing status; whether or not the primary study employed a technique to control or minimize potential endogeneity concerns and; a set of dummy variables that check whether or not

common corporate governance variables were included in the regressions. Table 3.6 shows an overview of all coded variables and their definition.

Insert Table 3.6 here

3.4 Results

3.4.1 Outliers, publication bias & distribution of effect sizes

Before conducting further empirical analysis we first checked for potential outliers in our coded dataset. Looking at standardized residuals from the full MARA model we removed 18 effect sizes that were outside the ± 2 interval (Viechtbauer and Cheung 2010). This reduced the original 529 effect sizes down to 511. The overall effect size distribution is shown in a histogram in Figure 3.3. All following analysis were performed on the reduced dataset. Next, to see if there is a potential publication selection and/or availability bias in the data we looked at the funnel plots presented in Figure 3.1 and 3.2. As Schmidt and Hunter (2015) and Stanley and Doucouliagos (2012) among others have pointed out, such biases exist (i) due to the preference from authors, reviewers and editors for statistically significant results and (ii) if our choice of primary studies led to a biased sample of all existing studies on the topic. In our case, the concern about preference for significant results seems to be warranted, as both the Egger regression test is significant (p-value <0.001) and the funnel plots are not completely symmetric and show an overweight of slightly positive effect sizes (Egger et al. 1997; Geyskens et al. 2009; Sterne and Egger 2005). Nevertheless, the heterogeneity between the effect sizes from primary studies is reduced through our choice of moderators, as can be seen by comparing the funnel plot for the basic random-effects model with the funnel plot for the full model. We dig deeper into the potential for publication bias in the meta-regression part of the results by assessing the differences between published and non-published studies as well as differences in study design. If it is the case that “high-quality” studies significantly differ from “low-quality” studies concerning the resulting effect sizes, the picture of publication bias funnel plots are drawing might be misleading (Lau et al. 2006).

Insert Figure 3.1 here

Insert Figure 3.2 here

Insert Figure 3.3 here

Meta-Analysis: Univariate Results

The univariate results from the HOMA Analysis are shown in Table 3.7. The findings show that overall, firms with institutional owners manage earnings less than firms with no institutional owners. The mean effect size (ES) is -0.02 (p-value < 0.001). The highly significant Q-Test (16,852, p-value < 0.001) displays the heterogeneity of the effect size and suggests, that it is highly likely that moderators are able to explain part of the variability in effect sizes. As our meta-analysis is set up to answer exactly under which conditions institutional owners produce a larger/smaller effect on earnings management, we proceed with exploring the subgroup analysis.

Insert Table 3.7 here

First, we looked at subgroups for different operationalization of the institutional ownership definition. Our findings show that using all specific types of ownership categorizations produce a significant effect on earnings management, which is stronger than the baseline effect of institutional owners in general. Specifically, the ES from transient or short-term oriented institutional ownership changes the direction of the effect (ES = 0.03, $p < 0.003$), indicating that short-term oriented owners might be more interested in managing earnings. This evidence need to be viewed in light of small numbers of effect sizes. For example, 61 effect sizes were used to calculate the mean effect size for the short-term ownership subsample compared to 511 effect sizes used to calculate the overall mean effect.

Second, we look at different operationalizations of earnings management. We find studies that choose the Dechow and Dichev (2002) model (ES: -0.07, $p < 0.001$), show a stronger relation between institutional ownership and earnings management. We see further that studies employing a non-absolute earnings measure find a stronger relation between institutional ownership

and earnings management. Specifically, income increasing earnings measure studies have a mean ES of -0.03 ($p < 0.032$) which is slightly stronger than the overall relationship.

Third, we can look at the development of the overall relationship across time and across countries. Table 3.8 shows the HOMA effect sizes over time, correspondingly Table 3.9 shows HOMA effect sizes per country. Notably, there appears to be no time pattern in the effect sizes. On a per country basis we find the following: The most effect sizes in our study ($n = 111$) are from samples for US firms. Here the effect sizes are on average slightly negative (ES -0.03, $p < 0.001$). The largest positive average effect sizes are from studies for Australian companies (ES 0.06, $p < 0.05$, $n = 47$). And the largest negative mean effect for a country is Italy (ES -0.21, $p < 0.001$), represented with two effect sizes in our meta-analysis.

Insert Table 3.8 here

Insert Table 3.9 here

3.4.2 Meta-Analysis: Multivariate Results

Table 3.10 reports five meta-analytic regression (MARA) models that are all based on r_{yx} -based effect sizes, as partial correlations are needed to see the effects control variables and study design choices have on the overall relationship. The r_{yz} -based effect sizes thus show an effect closer to the true mean effect size compared to simple correlations (Stanley and Doucouliagos 2012). The first four models show our full model estimated with different techniques to show, that the direction and significance of all moderator effects are robust to different assumptions regarding the underlying data.

Model 1 shows the basic random-effects meta regression. Model 2 shows the full model estimated with Knapp and Hartung (2003) adjustment to reduce the risk of Type I errors. This changes the significance tests for the individual coefficients from ones based on the normal distribution to tests based on a t-distribution. Model 3 shows a monte-carlo test as suggested by Higgings and Thomspson (2004), to check for the robustness of the obtained p-values for all moderators. Model 4 employs a hierarchical linear model, where each effect size is nested within their respective study per design. Finally, Model

5 is the general-to-specific model, where we tried to mitigate potential multicollinearity between moderators. Here, we removed insignificant variables at the 10 % cutoff-value one at a time to get to the specific model. Our general model contains 34 moderators and the specific one has 12 moderator variables remaining.

Insert Table 3.10 here

The full model is able to explain about 26% of variability in effect sizes. However, it seems that some relevant moderator variables are still missing from the model, as indicated by a significant Q-residual measure (Lipsey and Wilson 2001). The MARA model has 14 moderators that show a significant impact on the relationship between institutional ownership and earnings management. Looking at the operationalization of the dependent variable, it appears that choosing the Dechow and Dichev (2002) model has a significant negative coefficient ($\beta = -0.05$, $p < 0.05$) suggesting that the effect of institutional ownership on earnings management decreases when this model is used. Choosing to focus on firms that only manage decreasing earnings has a significant positive coefficient ($\beta = 0.03$, $p < 0.1$) suggesting stronger effects between institutional ownership and income decreasing accruals, compared to no institutional ownership. For firms primarily involved in an upwards management of earnings we find a significant negative coefficient ($\beta = -0.03$, $p < 0.05$).

Looking at different operationalizations of the independent variable, it appears that studies focusing on institutional owners with a short time-horizon show a stronger effects ($\beta = 0.08$, $p < 0.01$). Authors using a study design that controls for endogeneity in any way show a slightly stronger effect of institutional ownership on earnings management ($\beta = 0.02$, $p < 0.1$). As hypothesized, the use of control variables such as book-to-market ratio ($\beta = -0.02$, $p < 0.1$), leverage ($\beta = 0.04$, $p < 0.05$), block ownership ($\beta = -0.03$, $p < 0.1$), managerial ownership ($\beta = 0.02$, $p < 0.05$) and having a Big Four auditing firm ($\beta = 0.04$, $p < 0.01$) are important moderators of the relationship. Also somewhat surprisingly, we find that samples in a country with high degrees of investor protection ($\beta = 0.02$, $p < 0.05$) show a stronger relationship between institutional ownership on earnings management. Finally, weaker effects are found between institutional ownership (and earnings management, if said

relationship is explicitly stated as the main relationship of interest ($\beta = -0.04$, $p < 0.001$).

Most of the findings also hold true, when we used a different estimation technique. Using the hierarchical model, controlling for endogeneity ceases to be significant. However, having a lagged independent variable as a control variable becomes significant ($\beta = 0.04$, $p < 0.05$). Apart from disentangling income increasing and income decreasing accruals, which are still significant, differences in earnings management model choice cease to be important moderator variables. We find similar results for common control variables. Here, including a control variable for a Big Four auditing company is the only significant control variable left ($\beta = 0.04$, $p < 0.1$). In the general-to-specific model, none of the control variables remain significant. But choosing the Dechow and Dichev (2002) model as proxy for earnings management behavior is still a significant negative moderator ($\beta = -0.06$, $p < 0.001$).

Table 3.11 shows several robustness checks. The results seem to mainly hold across all sub-samples, however especially the differences between published and un-published work seem interesting. When only looking at effect sizes from published papers, we find a positive relationship between institutional ownership and earnings management, indicating that firms that are owned by professional investors seem to manage earnings more than firms not run by professional investors ($\beta = 0.2$, $p < 0.05$). Also, all moderator variables that focus on study design issues are significant for the subset of effect sizes in published studies. Of note, is the significantly positive effect of controlling for endogeneity on the relationship between institutional ownership and earnings management ($\beta = 0.04$, $p < 0.001$).

Insert Table 3.11 here

3.5 Discussion

In this paper, we investigated the relationship between institutional ownership and earnings management. While we identified 87 scholarly works that either directly or indirectly studied the effect institutional owners have on the quality of a firm's earnings, the body of work neither has converged on a general size or direction of the effect, nor on the impact of moderating influences on the relationship. With the help of advanced meta-regression

techniques, we tried to explain parts of the heterogeneity of findings and got a clearer picture of the moderating role of firm-, country- and study-specific variables. Overall, we find that there is a negative, albeit small, relationship between institutional ownership and earnings management. We also find that study characteristics moderate this relationship and that the twelve moderator variables in our general-to-specific meta-regression can explain 23.4% of the heterogeneity across findings in primary studies.

Our findings complement existing research by Koh (2003) showing that the time-horizon of institutional investors matters for earnings management. Koh finds that managers tend to manage earnings upwards in companies with low levels of institutional ownership (his proxy for short-term oriented investors) and that, conversely, high levels of institutional ownership (as a proxy for long-term oriented investors) constrains earnings management. Our study results are valuable extensions to Koh's (2003) findings. While the original results are based on a sample of Australian companies obtained between 1993 and 1997, we find the same average relationship across a wide variety of studies with effect sizes from samples of 26 countries between 1981 and 2013. The differences between short- and long-term oriented institutional investors are strengthened further by the fact that it holds in our univariate HOMA analysis and in the multivariate meta-regression analysis, controlling for a broad set of other moderating variables. Existing arguments state that institutional owners either constrain earnings management via monitoring and incentive-alignment (for example Jiambalvo 1996; Bushee and Abarbanell 1998; Balsam et al. 2002; Chung et al. 2002), or intensify earnings management via minority-expropriation and investors' own continuous performance evaluation loop (for example Lang and McNichols 1997; Black and Coffee 1994; Wang 2014). Instead, our findings strengthen the view that institutional investors, depending on their investment time-horizon, do both.

Our findings also challenge existing cross-country evidence that earnings management of firms is to a large degree driven by their institutional surroundings (Leuz et al. 2003; Haw et al. 2004; Burgstahler et al. 2006; Enomoto et al. 2015). In their seminal work on earnings management across countries, Leuz et al. (2003) find that countries with a high degree of investor protection tend to exhibit lower levels of earnings management and vice versa. In our meta-analysis we find that for countries with a high level of investor pro-

tection⁵ primary studies show a stronger relationship between institutional ownership and earnings management. While this result may be counter-intuitive, we believe that it may be reasonable, as effective minority protection would decrease overall earnings management throughout the country. However, on a comparative level, institutional owners would likely be the ones with the resources and knowledge to circumvent these strong standards and still be able to manage earnings. Interestingly, the HOMA results across countries are not in line with the evidence by Leuz et al. (2003) and others. We would have suspected a clear difference between high investor protection countries⁶ and low investor protection countries⁷. Instead, with rare exceptions, such as Australia and Taiwan, all average effect sizes per country are negative, indicating that investor protection laws and institutions cannot be the primary determinant of earnings management differences across countries.

Our paper has three main limitations. First, while we attempt to cast a wide net of prior research that includes a substantial amount of unpublished work, we are still limited by datasets available to primary researchers. Even though we were able to obtain 511 total effect sizes from 87 studies, those studies are primarily based on samples from Anglo-American countries (USA, UK, Australia), South-East-Asian countries (Taiwan, Malaysia, India) as well as China. Thus, the underrepresentation of developed countries in Europe is both (1) a potential area for future research and (2) needs to be taken into consideration when looking at the impact of our institutional moderators in the meta-analysis.

Second, our results are sensitive to the quality of prior work. As we wanted to investigate potential publication bias and reduce the 'file drawer problem' (Rosenthal 1979), we included all possible studies concerned with our subject. Thus, every effect size is treated equally regardless of study quality, i.e., effect sizes from working papers and effect sizes from highly-ranked journal articles are both included in the meta-analysis. Thus, we have a wide variety of study quality. Overall, our dataset has a roughly 60/40 distribution of published and unpublished studies. While objective, this is often grounds

⁵Measured by the Anti-Director-Dealings Index, corrected for 2005 values. Taken from Spamann (2010).

⁶Typically, these are countries with a common-law tradition, such as USA, UK, Hong Kong or Malaysia in our sample.

⁷Typically, these are countries with a French civil-law tradition, such as France, Italy, Spain or Turkey in our sample.

for the “garbage in and garbage out” critique of meta-analyses (Hunt 1997, p. 42).

We employ two approaches to minimize grounds for such a critique. First, our random-effects meta-analysis estimation is a weighted least squares estimation, where each effect size is weighted by the inverse variance of the effect size. Thus, effect sizes from ‘high quality’ studies are given preference over ‘lower quality’ studies, as they tend to have larger sample sizes and smaller variances. Second, we coded further aspects of study quality such as publication status, endogeneity checks, and use of specific control variables and included these aspects as moderator variables. Regarding endogeneity checks, it is unsurprising to see that disregarding potential endogeneity issues has a much stronger effect in the subsample of published studies compared to the full sample (see Table 3.11). For published studies that investigate the relationship between institutional owners and earnings management, having some endogeneity control (either via an instrumental variable approach or through a fixed-effects, random-effects or first difference approach), leads to studies showing significantly stronger (weaker) relations between institutional (non-institutional) owners and earnings management. Correspondingly, published studies that did not employ lagged independent variables significantly overstate the relationship.

Third, we are not able to consider the notion of endogeneity within the context of our meta-analysis itself, namely that institutional owners may increase or decrease their holdings in a firm based on its levels of earnings management. Endogeneity concerns within the meta-analysis are an issue that can be resolved in future research by employing the growing methodological literature on meta-analytic structural equation modeling (see for example Cheung 2015). Such structural equation modeling would allow researchers to test the relationship more closely, including the potential feedback loop that earnings management may provide to institutional owners.

A further potentially compelling direction for research might be to look more specifically at different levels of institutional ownership. While our study was able to disentangle different effects based on whether or not ownership was defined as a percentage or dummy, due to data restrictions, we were not able to look at whether or not it makes a difference that institutional owners are either majority or minority owners.

Notwithstanding these limitations, our study contributes to the accounting

literature in four important ways. First, it shows study design choices are the primary determinant of the observed effects of institutional owners on a firm's earnings management practices in primary studies.

Second, building on this contribution the paper shows that especially the way how accounting scholars measure the relevant constructs of ownership and earnings management is important. Our findings show that studies, which particularly investigate short-term institutional owners, report greater associations between said investors and earnings management. This is in line with theory, which states that short-term owners have a higher motivation to push their portfolio companies towards showing the best possible earnings figures (Bushee 1998; Graham et al. 2005; Bowen et al. 2008). Also, we find that primary authors' choice on how to model accruals matters. The modified Jones model (Dechow et al. 1995) and its related models, which try to explain accruals based on revenue growth and property, plant, and equipment figures, show significantly stronger relations between ownership and earnings management than the Dechow and Dichev (2002) approach. In Dechow and Dichev's approach, accruals are modeled based on past, present, and future cash flows from operations. Our observation of this systematic modeling difference across 87 studies is a good starting point for future research. Future research should investigate, whether institutional owners prefer managers, who manipulate long-term accruals over managers, who manipulate short-term operative cash flow figures.

Third, we contribute to the financial reporting quality literature in trying to establish meta-analysis, particularly advanced meta-regression methods, as a new methodology in the literature. While there is one existing meta-analysis (Garcia-Meca and Sanchez-Ballesta 2009) in the accounting literature, we are the first in the corporate governance literature to employ meta-regression methods.⁸ The results from existing methods employed in the literature⁹ might suffer from omitted-variable-bias and confounding, as moderator variables in a meta-analysis are often correlated (Viechtbauer 2007; Steel and Kammeyer-Mueller 2002). Only meta-regression enables to investigate how much influence a moderating variable, such as investor protection, has on the overall relationship, holding all other moderators constant.

⁸In the auditing literature, Hay and Knechel (2017) used a meta-regression approach to evaluate the evidence on the Big N audit firm premium.

⁹Where the relationship of interest is investigated for each potential moderator individually (for example with running a basic meta-analysis on the subsamples of published and unpublished studies).

Finally, a carefully designed cross-country study might also find that institutional differences across countries matter for earnings management, as found for example by Leuz et al. (2003). However, without considering all other study-specific choices, it is hard to wholly attribute the difference in earnings management propensity to institutional or cross-country effects. It is the specific strength of meta-regression to indicate under what circumstances an association is strongest and what study design choices might systematically influence said relationship (Lau et al. 1998; Lipsey and Wilson 2001).

3.6 Appendix

FIGURE 3.1: Funnel plot for basic random effects model

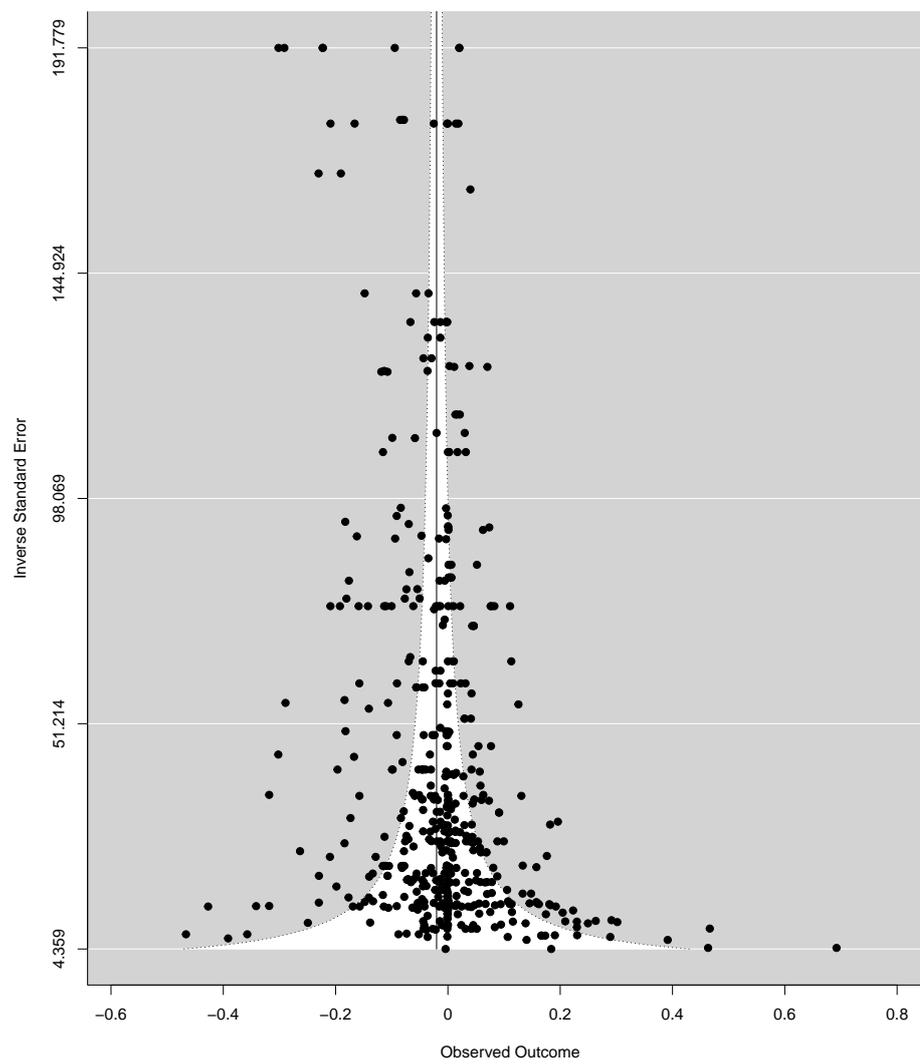


FIGURE 3.2: Funnel plot for mixed-effects model with moderators

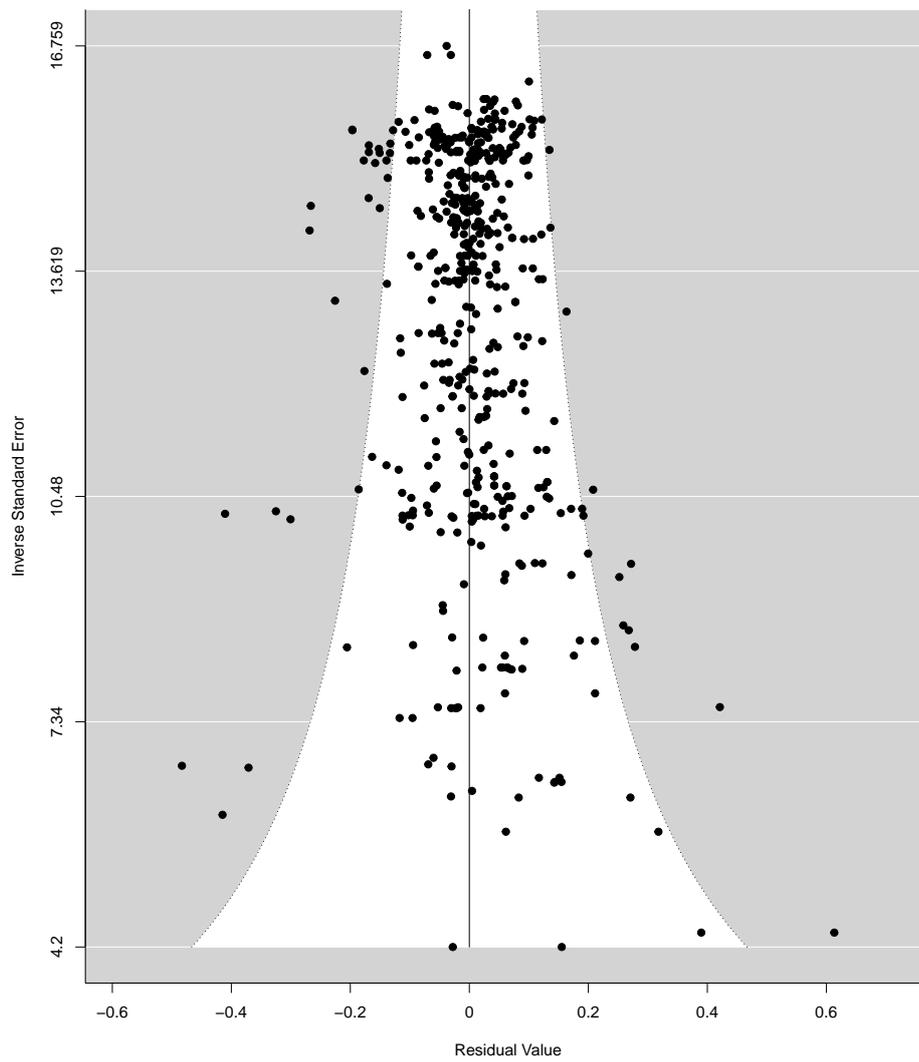


FIGURE 3.3: Effect size distribution across all studies

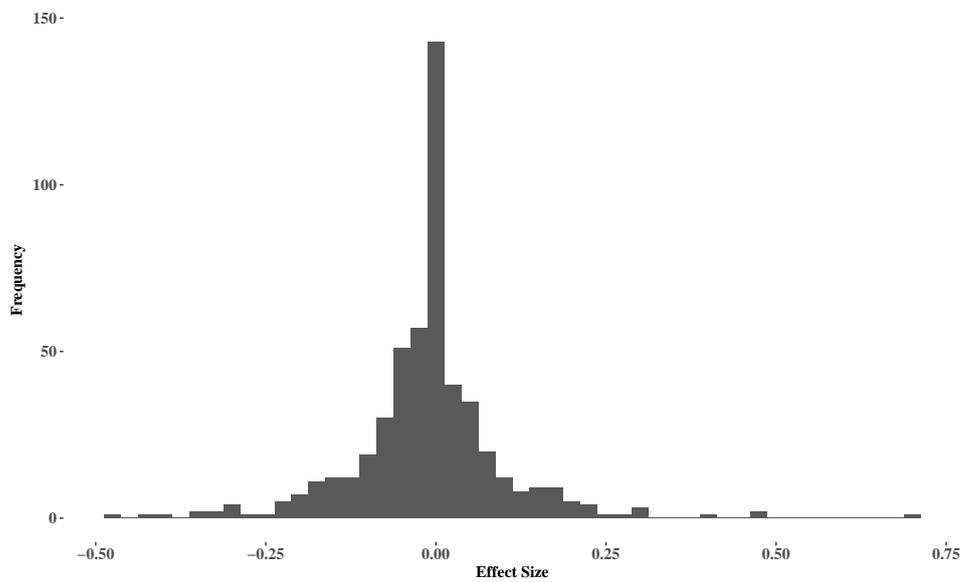


TABLE 3.1: Sample Selection

	Number of studies	Percentage
Initial sample (abstract analysis = relevant)	678	100%
Criteria leading to exclusion of studies		
—Non-English main body	(399)	58.8%
—Not relevant after full text search	(175)	25.8%
—Studies including interaction effects	(10)	1.5%
—Relevant effect sizes missing in tables	(7)	1.0%
Final sample	87	12.8%

TABLE 3.2: Primary Studies Used in Meta-Analysis

Author(s)	Year	Country	Sample Size	Sample Years	Journal
Adiguel H.	2013	Turkey	410	2006-2010	AFR
Ahmed A., Duellmann S., Abdel-Meguid A.	2006	USA	26,357	2002-2004	WP
Al-Fayoumi N., Abuzayed B., Alexander D.	2010	Jordan	195	2001-2005	IRJAFE
Al-Zyoud A.A.	2012	United Kingdom	91	2005-2005	WASJ
Ali S.M., Salleh N.M., Hassan M.S.	2008	Malaysia	1,001	2002-2003	AJBA
Alghamdi S.	2012	Saudi Arabia	337	2001-2008	WP
Alves S.	2012	Portugal	204	2002-2007	AABFJ
Anglin P., Edelstein R., Gao Y.	2013	United States	216	2003-2008	JREFE
Aygun M., Ic S., Sayim M.	2014	Turkey	230	2009-2012	IJBM
Badolato P., Donelson S., Ege M.	2014	USA	19,807	2002-2008	JAE
Balachandran D., Hanlon D., Tu H.	2013	Australia	130	1987-1988	ATF
Ben-Nasr H., Boubakri N., Cosset J.-C.	2015	Multiple (45 countries)	350	1985-2007	JAPP
Bos S., Pendleton A., Toms S.	2011	United Kingdom	199	2004-2005	WP
Bowen R., Rajgopal S., Venkatachalam M.	2008	United States	3,154	1992-1995	CAR
Bushee B.	1998	United States	13,994	1983-1994	TAR
Chan L.H., Chen K.C., Chen T.Y., Yu Y.	2015	United States	3,556	2000-2009	TAR
Charitou A., Lambertides N., Trigeorgis L.	2007	United States	859	1986-2004	ABACUS
Chi J., Yang J., Young M.	2014	China	1,623	2004-2009	JMFM
Choi S.K., Seo J.W.	2008	South Korea	6,557	1993-2003	APJFS
Chung R., Firth M., Kim J.-B.	2002	United States	12,478	1988-1996	JCF
Cornett M.M., Marcus A.J., Saunders A., Tehranian H.	2006	United States	676	1993-2000	WP
Cornett M.M., Marcus A.J., Tehranian H.	2008	United States	834	1994-2003	JFE
Daoud Ellili N.O.	2013	United Arab Emirates	29	2008-2009	COC
Darrough M.N., Pourjalali H., Saudagaran S.	1998	Japan	2,454	1989-1992	TIJA
Dimitropoulos, P.	2011	Multiple (Belgium, Denmark, France, Germany, Italy, The Netherlands, Sweden, Spain, Greece, United Kingdom)	268	2006-2009	ESMQ
Elghuweel M.	2006	Oman	1,152	2001-2011	WP
Ebrahim A. M.	2004	USA	2,390	1999-2000	WP

Emamgholipour M., Bagheri S.M., Mansourinia E., Arabi A.M.	2013	Iran	700	2006-2010	MSL
Gonzalez J.S., Garcia-Meca E.	2014	Multiple (Argentina, Brazil, Chile, Mexico)	1,740	2006-2009	JBE
Habbash M.	2010	United Kingdom	294	2003-2006	Thesis
Han S.	2005	United States	16,189	1997-2001	Thesis
Hashim A.H., Devi S.S.	2007	Malaysia	280	1999-2005	WP
Hashim A.H., Devi S.S.	2012	Malaysia	831	2003-2005	PSBS
Hashim A.H., Devi S.S.	2008	Malaysia	280	2004-2004	Book
Hassan S.U., Ahmed A.	2012	Nigeria	60	2008-2010	AIJCR
Houqe M.N., van Zijl T., Dunstan K., Karim A.K.	2010	Bangladesh	648	2001-2006	ATBR
Hsu G.C.-M., Koh P.-S.	2005	Australia	201	1993-1997	CGIR
Hsu M.-F.	2015	Taiwan	12,312	2002-2011	IRJAFE
Hsu M.-F., Wen S.-Y.	2015	China	11,604	2002-2012	AEFR
Huang H.H., Wang W., Zhou J.	2013	United States	3,310	1997-2003	ABACUS
Idris M.I.	2012	Jordan	197	2005-2008	Thesis
Isenmila A.E.	2012	Nigeria	160	2006-2010	RJFA
Jaiswall M., Banerjee A.	2012	India	948	2006-2011	WP
Jha A., Shankar S.	2015	India	22,526	2001-2009	TJFR
Jiraporn P., Gleason K.C.	2006	United States	453	1996-1999	WP
Jouber H., Fakhfakh H.	2011	Multiple (France, Canada)	720	2006-2008	MAJ
Kangarlouei S.J., Pakmaram A., Bayazidi A.	2012	Iran	140	2003-2009	JABFR
Koh P.-S.	2003	Australia	836	1993-1997	TBAR
Koh P.-S.	2005	Australia	836	1993-1997	ARJ
Koh P.-S.	2007	United States	16,641	1995-1998	JAPP
Kouaib A., Jaroubi A.	2014	Tunisia	305	2007-2011	JEFAS
Lakhil N.	2015	France	170	2008-2008	TJABR
Latif A.S., Abdullah F.	2015	Pakistan	120	2003-2012	TLJE
Lee J.-W., Jin L.	2012	China	217	2004-2006	COC
Lee K.W., Lev B., Yeo G.	2007	United States	31,263	1991-2004	JAAF
Lin L., Manowan P.	2012	United States	18,969	1996-2001	RPBFMP
Lin T.P.	2011	China	1450	2004-2008	Thesis
Liu L.Y., Peng E.Y.	2006	United States	34,782	1981-2003	WP
Mitra S.	2002	United States	386	1991-1998	Thesis
Mitra S., Cready W.M.	2005	United States	373	1991-1998	JAAF
Murphy G.F., Johl S., Khan A.	2010	Australia	1,434	2008-2008	WP
Njah M., Jarbouli A.	2013	France	218	2000-2010	JEFAS

O'Sullivan M., Percy M., Stevenson-Clarke P.	2011	Australia	239	2000-2002	COC
Pizzaro V., Mahenthrian S., Cademartori D., Curci R.	2007	Chile	70	1996-2005	WP
Poli S.	2015	Italy	27,448	2010-2013	IFEF
Rajgopal S., Vekatachalam M., Jiambalvo J.	1999	United States	8,963	1989-1995	WP
Ramadan I.Z.	2012	Jordan	770	2000-2010	IFEF
Rifi N.	2010	Multiple (France, Germany, The Netherlands, United Kingdom)	718	2002-2007	Thesis
Roodposhti F.R., Chashmi S.A.	2011	Iran	196	2004-2008	AFBM
Sabien M.	2010	India	51	2001-2008	Thesis
Sampson V.M.	2003	New Zealand	250	1998-2002	Thesis
Sanchez C.B., Aleman J.P., Martin D.J.	2008	Spain	102	1997-2003	SAR
Sanchez-Ballesta J.P., Garcia-Meca E.	2007	Spain	2003	1999-2002	CGIR
Shah K., Shah A.	2014	Pakistan	986	2003-2010	TLJE
Shah S.Z., Zafar N., Durrani T.K.	2009	Pakistan	120	2003-2007	MEFE
Shaikh A.M., Iqbal M.J., Shah S.Z.	2012	Pakistan	68	2006-2010	IMBR
Siregar S.V., Utama S.	2008	Indonesia	864	1999-2002	TIJA
Teshima N., Shuto A.	2008	Japan	18,631	1991-2000	JIFMA
Tong Y.H.	2008	United States	3,040	1992-2003	AA
Velury U., Jenkins D.S.	2006	United States	4,238	1992-1999	JBR
Wang H.-D., Lin C.-J.	2013	Taiwan	5,122	1996-2007	JBFA
Wang M.	2014	United Kingdom	5,728	1997-2010	CGIR
Wang X., Wu M.	2011	China	1,092	1999-2005	CJAR
Wang, D.	2006	United States	4,195	1994-2002	JAR
Weiss D.	2014	Israel	573	2010-2011	EAR
Yang W.S., Chun L.S., Ramadili S.M.	2009	Malaysia	613	2001-2003	IFEM
Yu F.	2006	United States	2,736	1984-1991	WP

Journal abbreviations are as follows: AA: Advances in Accounting; AABFJ: Australian Accounting, Business and Finance Journal; AEF: Asian Economic and Financial Review; AFBM: African Journal of Business Management; AFR: Accounting and Finance Research; American International Journal of Contemporary Research; AJBA: Asian Journal of Business and Accounting; APJFS: Asia-Pacific Journal of Financial Studies; ARJ: Accounting Research Journal; ATBR: Academy of Taiwan Business Review; CAR: Contemporary Accounting Research; CGIR: Corporate Governance: An International Review; CJAR: China Journal of Accounting Research; COC: Corporate Ownership and Control; EAR: European Accounting Review; ESMQ: European Sport Management Quarterly; IFEF: International Journal of Economics and Finance; IFEM: International Journal of Economics and Management; IJBM: International Journal of Business and Management; IMBR: Information Management and Business Review; IRJAFE: International Research Journal of Applied Finance and Economics; JAAF: Journal of Accounting, Auditing and Finance; JABFR: Journal of Applied Business and Finance Researches; JAPP: Journal of Accounting and Public Policy; JAR: Journal of Accounting Research; JBE: Journal of Business Ethics; JBFA: Journal of Business Finance and Accounting; JBR: Journal of Business Research; JCF: Journal of Corporate Finance; JEFAS: Journal of Economics, Finance and Administrative Science; JFE: Journal of Financial Economics; JIFMA: Journal of International Financial Management and Accounting; JMFMA: Journal of Multinational Financial Management; JREFE: Journal of Real Estate Finance and Economics; MAJ: Managerial Accounting Journal; MEFE: Middle Eastern Finance and Economics; MSL: Management Science Letters; PSBS: Procedia - Social and Behavioral Sciences; RFJA: Research Journal of Finance and Accounting; RPBFP: Review of Pacific Basin Financial Markets and Policies; SAR: Spanish Accounting Review; TAR: The Accounting Review; TBAR: The British Accounting Review; TIJA: The International Journal of Accounting; TJABR: The Journal of Applied Business Research; TJFR: The Journal of Financial Research; TLJE: The Lahore Journal of Economics; WASJ: World of Applied Sciences Journal, WP: Working Paper.

TABLE 3.3: Number of Studies and Number of Effect Sizes per
Country

Country	Studies	Effect Sizes
USA	19	111
Multiple	8	93
Australia	6	47
China	5	39
Malaysia	5	19
UK	4	40
India	4	13
Pakistan	4	10
Iran	3	22
Jordan	3	17
Taiwan	2	15
France	2	12
Japan	2	11
Spain	2	9
Turkey	2	6
UAE	2	5
Nigeria	2	2
Saudi Arabia	1	12
Oman	1	6
New Zealand	1	5
Chile	1	4
Portugal	1	4
South Korea	1	3
Israel	1	2
Italy	1	2
Indonesia	1	1
Tunisia	1	1

TABLE 3.4: Number of Studies and Number of Effect Sizes per study year

Study Year	Studies	Effect Sizes
1997	1	4
1998	1	3
2002	2	17
2003	2	6
2004	2	24
2005	3	31
2006	7	35
2007	6	56
2008	9	30
2009	2	9
2010	7	31
2011	6	22
2012	13	67
2013	9	45
2014	7	68
2015	9	63

TABLE 3.5: Number of Studies and Number of Effect Sizes
started/ended per sample year

Year	Starting Studies	Ending Studies	Starting Effect Sizes	Ending Effect Sizes
1981	1		14	
1982				
1983				
1984				
1985				
1986	1		2	
1987	1		1	
1988		1		1
1989	2		11	
1990				
1991	6		44	
1992	3	1	18	3
1993	5		28	
1994	3	1	15	4
1995	3		39	
1996	1	1	17	8
1997	4	3	48	29
1998	2	4	9	45
1999	4	4	12	16
2000	4	2	18	10
2001	6	1	33	17
2002	6	6	32	29
2003	6	7	20	50
2004	9	5	60	13
2005	4	7	26	30
2006	7	3	40	16
2007	1	3	1	11
2008	3	11	17	62
2009	1	6	2	50
2010	1	9	2	61
2011		5		27
2012	1	4	2	14
2013		1		15

TABLE 3.6: Variable Definitions

Variables	Definition
Overall Relation	Fisher's z-transformed effect size reported in the primary study concerning the relationship between family firm status and earnings management.
Moderators	
Institutional Ownership Definition	
Inst. Ownership as Percentage	Dummy is 1 if an institutional ownership type is based on a percentage measure in primary studies
Inst. Ownership as Dummy	Dummy is 1 if an institutional ownership type is based on a dummy variable in primary studies
Short-term Owners	Dummy is 1 if an institutional ownership type is based on transient ownership in primary studies
Long-term Owners	Dummy is 1 if an institutional ownership type is based on non-transient ownership in primary studies
Earnings Management measure	
Accrual Earnings Management	Dummy is 1 if the dependent variable effect size is based on an accrual earnings management model
Real Earnings Management	Dummy is 1 if the dependent variable effect size is based on a real earnings management model
Original Jones 1991 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Jones (1991)
Modified Jones 1995 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Dechow et al. (1995)
Dechow and Dichev 2002 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Dechow and Dichev (2002)
Ball 2005 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Ball (2005)
Kothari et al. 2005 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Kothari et al. (2005)
Francis et al. 2005 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Francis et al. (2005)
Liu and Liu 2007 Model	Dummy is 1 if the dependent variable effect size is based on the accrual model from Liu and Liu (2007)
Other Accrual Based Models	Dummy is 1 if the dependent variable effect size is based on an accrual model other than Jones (1991), Dechow et al. (1995), Dechow and Dichev (2002), Ball (2005), Kothari et al. (2005), Francis et al. (2005) or Liu and Liu (2007) models
Increasing Accruals	Dummy is 1 if the dependent variable effect size is based on a positive, non-absolute measure of accruals
Decreasing Accruals	Dummy is 1 if the dependent variable effect size is based on a negative, non-absolute measure of accruals
Common Set of Control Variables	
Size	
Book-to-Market	Dummy is 1 if the primary study included a control variable for size of a firm
Leverage	Dummy is 1 if the primary study included a control variable for book-to-market ratio of a firm
Loss	Dummy is 1 if the primary study included a control variable for leverage ratio of a firm
Cash From Operations	Dummy is 1 if the primary study included a control variable for negative earnings of a firm
Performance	Dummy is 1 if the primary study included a control variable for cash flow from operations of a firm
Sales Growth	Dummy is 1 if the primary study included a control variable for financial performance of a firm
Big-4 Auditor	Dummy is 1 if the primary study included a control variable for sales growth of a firm
Board Characteristics	Dummy is 1 if the primary study included a control variable for whether the firm is audited by a big four accounting firm
Block Ownership	Dummy is 1 if the primary study included a control variable for board composition of a firm
Insider Ownership	Dummy is 1 if the primary study included a control variable for block ownership of a firm
Family Ownership	Dummy is 1 if the primary study included a control variable for insider ownership of a firm
Institutional Characteristics	
Anti-Director Dealings Index 2005	Variable measuring the degree of shareholder protection from expropriation by management. Used the corrected 2005 values taken from Spamann (2010)
Anti-Self Dealing Index 2008	Variable measuring the degree of minority protection from self-dealing by controlling shareholders developed by Djankov et al. (2008)
ln(GDP per Capita)	Variable measuring the natural logarithm of GDP per capita for the underlying median sample year and country in original studies
Meta-Analysis Specific Controls	
Endogeneity Control	Dummy is 1 if the primary study employed one of the following methods: Fixed- (Random-) Effects Estimation, Heckman Correction, GMM or 2SLS
Lagged IV	Dummy is 1 if the primary study included a lag of their independent variable in their regression specification
Median Sample Year of Study	Variable measuring the median sample year of the sample window used in original studies
Published Study	Dummy is 1 if the primary study is published in a journal
IO->EM as relationship of interest	Dummy is 1 if the primary study focused on the link between institutional ownership and earnings management as their main relationship of interest

TABLE 3.7: Univariate Meta-Analysis of Fisher-Z transformed Effect Sizes

HOMA Meta-Analytic Results									
Partial linear correlation coefficient (r_{xyz}) and Pearson product-moment coefficient (r)									
Predictor	k	Mean	SE	pval	CI 95%	Q-Test	Q-pval	I ²	
Institutional Ownership on Earnings Management	511	-0.02*	0.00	0.000	-0.03 -0.01	16852.40*	0.000	95.80	
Institutional Ownership as percentage	472	-0.02*	0.00	0.000	-0.03 -0.01	16604.90*	0.000	96.10	
Institutional Ownership as dummy	39	-0.03*	0.01	0.016	-0.05 -0.01	182.00*	0.000	82.20	
Short-term Owners	61	0.03*	0.01	0.003	0.01 0.04	319.60*	0.000	90.60	
Long-term Owners	44	-0.04*	0.01	0.001	-0.07 -0.02	1894.20*	0.000	95.90	
Accrual Based Earnings Management	476	-0.02*	0.00	0.000	-0.03 -0.01	16029.40*	0.000	95.70	
Real Earnings Management	35	-0.02	0.02	0.283	-0.05 0.01	544.60*	0.000	96.50	
Jones Model	33	-0.01	0.01	0.377	-0.03 0.01	231.50*	0.000	88.00	
Modified Jones 95 Model	183	-0.01	0.01	0.096	-0.02 0.00	1724.30*	0.000	92.10	
Dechow Dichev 02 Model	34	-0.07*	0.02	0.000	-0.10 -0.03	7505.80*	0.000	99.40	
Ball 05 Model	22	0.02	0.01	0.183	-0.01 0.05	114.30*	0.000	82.80	
Kothari Leone Wasley 05 Model	112	-0.02*	0.01	0.023	-0.03 -0.00	1331.80*	0.000	91.30	
Francis et al. 02 Model	28	-0.02	0.02	0.169	-0.06 0.01	1084.50*	0.000	97.30	
Liu Liu 07 Model	24	0.00	0.02	0.829	-0.03 0.03	69.90*	0.000	70.30	
Other Accrual Models	40	-0.07*	0.02	0.000	-0.10 -0.04	2120.90*	0.000	97.40	
Increasing Accruals	86	-0.03*	0.01	0.032	-0.05 -0.00	1251.80*	0.000	95.20	
Decreasing Accruals	58	0.01	0.01	0.279	-0.01 0.04	848.20*	0.000	94.60	
Public Company	507	-0.02*	0.00	0.000	-0.03 -0.01	15468.50*	0.000	95.50	
Private Company	4	-0.14*	0.04	0.000	-0.22 -0.06	118.20*	0.000	98.70	
Published Study	340	-0.02*	0.00	0.000	-0.03 -0.01	6800.30*	0.000	95.00	
Unpublished Study	171	-0.02*	0.01	0.013	-0.03 -0.00	9162.60*	0.000	96.70	
Endogeneity Control [y]	310	-0.02*	0.01	0.000	-0.03 -0.01	14352.50*	0.000	97.00	
Endogeneity Control [n]	201	-0.02*	0.01	0.000	-0.03 -0.01	1881.00*	0.000	90.50	
One Industry Only Sample	27	-0.02*	0.01	0.013	-0.04 -0.00	22.50	0.661	23.90	

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level. k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I² = percentage amount of unexplained heterogeneity

TABLE 3.8: HOMA Effect Size Development Over Time

HOMA Effect Size Development Over Time									
Partial linear correlation coefficient (r_{xyz}) and Pearson product-moment coefficient (r)									
Years	k	Mean	SE	pval	CI 95%		Q-Test	Q-pval	I2
1988	1	-0.04	0.09	0.683	-0.21	0.14	0.00	1.000	0.00
1991	3	0.00	0.01	0.874	-0.02	0.03	0.00	0.999	0.00
1992	14	-0.10*	0.03	0.002	-0.17	-0.04	7108.60*	0.000	99.80
1993	8	-0.03*	0.01	0.025	-0.06	-0.00	91.80*	0.000	90.70
1994	4	-0.08	0.05	0.085	-0.17	0.01	94.20*	0.000	96.80
1995	43	0.03	0.02	0.164	-0.01	0.08	459.40*	0.000	98.00
1996	10	0.08	0.07	0.229	-0.05	0.21	107.40*	0.000	95.10
1997	46	-0.03*	0.01	0.044	-0.05	-0.00	599.60*	0.000	93.90
1998	22	-0.04*	0.01	0.005	-0.06	-0.01	867.10*	0.000	97.80
1999	23	-0.01	0.02	0.622	-0.05	0.03	162.60*	0.000	88.40
2000	38	-0.00	0.01	0.576	-0.01	0.01	35.60	0.535	25.70
2001	10	-0.09*	0.03	0.004	-0.15	-0.03	16.80	0.052	45.20
2002	12	-0.04	0.03	0.125	-0.10	0.01	81.60*	0.000	90.40
2003	19	0.07*	0.02	0.000	0.04	0.10	39.70*	0.002	53.50
2004	38	-0.04*	0.01	0.015	-0.06	-0.01	1128.50*	0.000	96.50
2005	61	-0.00	0.01	0.988	-0.02	0.02	531.80*	0.000	85.10
2006	21	0.01	0.01	0.356	-0.01	0.03	6.00	0.999	0.00
2007	70	-0.01	0.01	0.534	-0.02	0.01	550.20*	0.000	91.20
2008	55	-0.05*	0.01	0.000	-0.06	-0.03	564.00*	0.000	90.40
2009	8	-0.01	0.01	0.313	-0.04	0.01	5.20	0.636	0.00
2011	4	-0.17*	0.03	0.000	-0.22	-0.12	2.00	0.568	0.00
2012	2	-0.21*	0.02	0.000	-0.25	-0.17	21.60*	0.000	95.40

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level. k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I2 = percentage amount of unexplained heterogeneity.

TABLE 3.9: HOMA Effect Sizes per Country

HOMA Effect Sizes per Country									
Partial linear correlation coefficient (r_{xyz}) and Pearson product-moment coefficient (r)									
Country	k	Mean	SE	pval	CI 95%		Q-Test	Q-pval	I2
United States	111	-0.03*	0.01	0.000	-0.04	-0.01	1486.80*	0.000	93.10
Mixed	93	-0.02*	0.01	0.021	-0.05	-0.00	9211.00*	0.000	98.70
Australia	47	0.06*	0.03	0.014	0.01	0.11	141.50*	0.000	69.40
China	39	0.00	0.01	0.788	-0.02	0.02	272.30*	0.000	86.10
Malaysia	19	-0.07*	0.02	0.001	-0.12	-0.03	59.40*	0.000	69.50
United Kingdom	40	-0.02	0.02	0.122	-0.05	0.01	1115.10*	0.000	96.30
India	13	0.01	0.01	0.389	-0.01	0.02	16.60	0.163	34.00
Pakistan	10	0.01	0.01	0.390	-0.01	0.03	4.20	0.900	0.00
Iran	22	-0.05*	0.01	0.000	-0.08	-0.02	465.80*	0.000	96.10
Jordan	17	-0.01	0.04	0.838	-0.09	0.07	91.30*	0.000	85.00
France	13	-0.04	0.02	0.089	-0.09	0.01	3.30	0.993	0.00
Taiwan	15	0.02*	0.01	0.001	0.01	0.04	75.10*	0.000	80.50
Japan	11	-0.01	0.01	0.087	-0.03	0.00	64.70*	0.000	82.20
Spain	9	-0.03	0.03	0.304	-0.08	0.02	3.90	0.866	0.00
Turkey	6	-0.04	0.04	0.219	-0.11	0.03	9.80	0.082	49.40
UAE	5	-0.19*	0.08	0.024	-0.35	-0.02	13.10*	0.011	69.90
Nigeria	2	-0.06	0.10	0.564	-0.25	0.14	0.00	0.850	0.00
Saudi Arabia	12	0.03	0.02	0.147	-0.01	0.06	7.80	0.732	0.00
Oman	6	-0.00	0.01	0.996	-0.02	0.02	0.10	1.000	0.00
New Zealand	5	0.02	0.03	0.533	-0.04	0.08	1.20	0.882	0.00
Chile	4	0.01	0.02	0.750	-0.03	0.04	0.00	1.000	0.00
Portugal	4	-0.00	0.04	0.999	-0.07	0.07	0.00	1.000	0.00
South Korea	3	-0.07	0.06	0.236	-0.17	0.04	120.70*	0.000	98.30
Israel	2	-0.17*	0.04	0.000	-0.25	-0.09	1.80	0.175	45.50
Italy	2	-0.21*	0.02	0.000	-0.25	-0.17	21.60*	0.000	95.40
Indonesia	1	-0.02	0.03	0.520	-0.09	0.04	0.00	1.000	0.00
Tunisia	1	-0.04	0.06	0.440	-0.16	0.07	0.00	1.000	0.00

Asterisks on the mean effect sizes indicates a statistically significant value at the $p < 0.05$ level. k = number of samples; SE = standard error of the mean effect size; CI 95% = 95% confidence interval around the mean effect size; Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I2 = percentage amount of unexplained heterogeneity.

TABLE 3.10: Meta-Regression Results

	MARA	KNHA	MONTE-CARLO	HLM	GTS MARA
Constant	-0.03 (0.06)	-0.03 (0.07)	-0.03 (0.06)	0.05 (0.11)	-0.02 (0.02)
Number of predictors in original sample	-0.01 (0.00)***	-0.01 (0.00)***	-0.01 (0.00)***	-0.01 (0.00)***	-0.00 (0.00)***
Controlled for Endogeneity	0.02 (0.01)*	0.02 (0.01)*	0.02 (0.01)*	0.00 (0.01)	
Lagged independent variables	-0.00 (0.01)	-0.00 (0.02)	-0.00 (0.01)	0.04 (0.02)**	
Median Sample Year of Study	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Published Study	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.01 (0.02)	
IO->EM as relationship of interest	-0.04 (0.01)***	-0.04 (0.01)***	-0.04 (0.01)***	-0.04 (0.02)*	-0.04 (0.01)***
Anti-Director Dealings Index '05	0.02 (0.01)**	0.02 (0.01)**	0.02 (0.01)**	0.01 (0.01)	0.01 (0.00)***
Anti-Self Dealing Index '08	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	
ln(GDP per capita)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.01)	
Institutional Ownership as percentage measure	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.03 (0.02)	
Short-Term Oriented Institutional Owners	0.08 (0.02)***	0.08 (0.02)***	0.08 (0.02)***	0.10 (0.02)***	0.07 (0.01)***
Long-Term Oriented Institutional Owners	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)	
Real Earnings Management	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	
Original Jones Model	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.01 (0.02)	
Dechow and Dichev 2002 Model	-0.05 (0.02)**	-0.05 (0.02)**	-0.05 (0.02)**	-0.01 (0.02)	-0.06 (0.01)***
Ball 2005 Model	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.01 (0.04)	0.03 (0.02)
Kothari et al. 2005 Model	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.01 (0.02)	
Francis et al. 2002 Model	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	0.03 (0.05)	
Liu and Liu 2007 Model	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.08)	
Other Accrual Based Models	-0.07 (0.02)***	-0.07 (0.02)***	-0.07 (0.02)***	-0.03 (0.02)	-0.06 (0.01)***
Increasing Accruals	-0.03 (0.01)**	-0.03 (0.01)**	-0.03 (0.01)**	-0.03 (0.01)*	
Decreasing Accruals	0.03 (0.01)*	0.03 (0.01)*	0.03 (0.01)*	0.03 (0.02)*	0.04 (0.01)***
Size	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	-0.00 (0.03)	0.01 (0.01)
Book-to-Market	-0.02 (0.01)*	-0.02 (0.01)*	-0.02 (0.01)*	-0.01 (0.02)	
Leverage	0.04 (0.01)**	0.04 (0.01)**	0.04 (0.01)**	0.03 (0.02)	
Loss	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.02)	
Cash From Operations	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.02)	
Performance	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.02)	
Sales Growth	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.02)	
Block Ownership	-0.03 (0.01)*	-0.03 (0.01)*	-0.03 (0.01)*	-0.01 (0.02)	-0.01 (0.01)
Insider Ownership	0.02 (0.01)**	0.02 (0.01)**	0.02 (0.01)**	0.02 (0.02)	
Family Ownership	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	
Big-4 Auditor	0.04 (0.01)***	0.04 (0.01)***	0.04 (0.01)***	0.04 (0.02)*	
Board Characteristics	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.02)	-0.00 (0.01)
(pseudo)R ²	25.92%	25.92%	25.92%	42.50%	23.36%
Number of effect sizes	511	511	511	511	511
tau ²	0.004	0.004	0.004	0.003	0.005
Q-residual	7849.68 (0.00)***	7849.68 (0.00)***	7849.68 (0.00)***	7849.68 (0.00)***	10356.36 (0.00)***

Regression coefficients are presented with standard errors in parentheses. tau² is the amount of heterogeneity between studies. Q-residual is the chi-square test for residual heterogeneity. * p < 0.1 ** p < 0.05 *** p < 0.01

TABLE 3.11: Robustness Checks for Meta-Regression Results

	FULL	PUBLISHED	NON-PUBLISHED	ACCRUAL EM	REAL EM	ONE COUNTRY
Constant	-0.03 (0.06)	0.20 (0.09)**	0.02 (0.21)	0.00 (0.07)	3.91 (3.80)	0.04 (0.07)
Number of predictors in original sample	-0.01 (0.00)***	-0.00 (0.00)*	-0.00 (0.00)	-0.01 (0.00)***	0.07 (0.09)	-0.00 (0.00)***
Controlled for Endogeneity	0.02 (0.01)*	0.04 (0.01)***	-0.06 (0.04)	0.02 (0.01)	-0.06 (0.10)	0.03 (0.01)**
Lagged independent variables	-0.00 (0.01)	-0.07 (0.03)***	0.04 (0.02)**	-0.00 (0.01)	-0.00 (0.01)	0.01 (0.02)
Median Sample Year of Study	0.00 (0.00)	-0.00 (0.00)**	0.00 (0.00)	0.00 (0.00)	-0.16 (0.17)	-0.00 (0.00)*
Published Study	-0.02 (0.01)			-0.02 (0.01)*	5.11 (5.53)	-0.00 (0.01)
IO->EM as relationship of interest	-0.04 (0.01)***	-0.00 (0.02)	-0.06 (0.04)	-0.04 (0.01)***	2.87 (3.24)	-0.04 (0.01)***
Anti-Director Dealings Index '05	0.02 (0.01)**	0.02 (0.01)**	0.00 (0.02)	0.01 (0.01)**	-0.82 (0.89)	0.02 (0.01)***
Anti-Self Dealing Index '08	-0.01 (0.01)	-0.02 (0.01)*	-0.01 (0.02)	-0.01 (0.01)	-1.75 (1.92)	-0.01 (0.01)*
ln(GDP per capita)	0.00 (0.00)	-0.01 (0.01)**	-0.00 (0.01)	-0.00 (0.00)	-0.02 (0.06)	-0.00 (0.00)
Institutional Ownership as percentage measure	0.01 (0.02)	-0.04 (0.02)*	0.03 (0.04)	0.01 (0.02)		0.01 (0.02)
Short-Term Oriented Institutional Owners	0.08 (0.02)***	0.05 (0.02)***	0.12 (0.03)***	0.08 (0.02)***		0.08 (0.02)***
Long-Term Oriented Institutional Owners	-0.01 (0.01)	-0.03 (0.02)	0.03 (0.03)	-0.01 (0.01)		-0.01 (0.02)
Real Earnings Management	0.02 (0.02)	0.04 (0.02)**	-0.10 (0.06)*	0.01 (0.02)		0.02 (0.02)
Original Jones Model	0.00 (0.02)	0.04 (0.02)	-0.02 (0.04)	0.01 (0.02)		-0.01 (0.02)
Dechow and Dichev 2002 Model	-0.05 (0.02)**	-0.00 (0.02)	-0.06 (0.05)	-0.04 (0.02)**		-0.02 (0.02)
Ball 2005 Model	0.03 (0.02)	-0.02 (0.04)	0.07 (0.05)	0.03 (0.02)		-0.00 (0.03)
Kohari et al. 2005 Model	-0.01 (0.01)	-0.00 (0.02)	-0.08 (0.03)***	-0.01 (0.01)		-0.01 (0.01)
Francis et al. 2002 Model	-0.01 (0.02)	0.04 (0.03)		0.00 (0.02)		0.01 (0.02)
Liu and Liu 2007 Model	-0.03 (0.03)	-0.00 (0.04)		-0.04 (0.03)		-0.03 (0.04)
Other Accrual Based Models	-0.07 (0.02)***	-0.05 (0.02)***	-0.08 (0.04)*	-0.07 (0.02)***		-0.07 (0.02)***
Increasing Accruals	-0.03 (0.01)**	-0.03 (0.02)	-0.04 (0.03)	-0.02 (0.01)		-0.02 (0.01)
Decreasing Accruals	0.03 (0.01)*	0.03 (0.02)*	0.02 (0.03)	0.03 (0.01)**		0.09 (0.09)
Size	0.00 (0.02)	0.00 (0.02)	0.05 (0.05)	0.00 (0.02)		0.01 (0.02)
Book-to-Market	-0.02 (0.01)*	-0.03 (0.01)**	0.01 (0.03)	-0.02 (0.01)**		-0.01 (0.01)
Leverage	0.04 (0.01)**	0.00 (0.02)	-0.01 (0.04)	0.04 (0.01)***		0.01 (0.02)
Loss	-0.01 (0.01)	-0.00 (0.02)	-0.07 (0.05)	-0.01 (0.01)		-0.01 (0.01)
Cash From Operations	-0.00 (0.01)	-0.00 (0.02)	0.00 (0.04)	-0.00 (0.01)		0.01 (0.01)
Performance	-0.01 (0.01)	-0.00 (0.02)	0.02 (0.05)	-0.01 (0.01)		-0.01 (0.01)
Sales Growth	-0.01 (0.01)	0.01 (0.02)	0.05 (0.04)	-0.01 (0.02)		-0.00 (0.02)
Block Ownership	-0.03 (0.01)*	-0.03 (0.02)	-0.02 (0.04)	-0.02 (0.01)		-0.02 (0.01)
Insider Ownership	0.02 (0.01)**	0.03 (0.01)*	-0.02 (0.04)	0.02 (0.01)*		0.02 (0.01)
Family Ownership	-0.02 (0.02)	0.03 (0.02)	-0.04 (0.05)	-0.02 (0.02)		0.00 (0.02)
Big4 Auditor	0.04 (0.01)***	0.05 (0.01)***	-0.02 (0.05)	0.04 (0.01)***		0.04 (0.01)***
Board Characteristics	-0.00 (0.01)	-0.00 (0.02)	0.05 (0.06)	-0.00 (0.01)		-0.00 (0.01)
R ²	25.92%	19.57%	43.57%	26.78%	24.42%	25.28%
Number of effect sizes	511	340	171	475	36	418
tau ²	0.004	0.004	0.004	0.004	0.006	0.004
Q-residual	7849.68 (0.00)***	3495.42 (0.00)***	3109.03 (0.00)***	7289.67 (0.00)***	349.32 (0.00)***	3565.70 (0.00)***

Regression coefficients are presented with standard errors in parentheses. tau² is the amount of heterogeneity between studies. Q-residual is the chi-square test for residual heterogeneity. * p < 0.1 ** p < 0.05 *** p < 0.01

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Chapter 4

The Fish Rots From The Head Down: Managerial Personality and Financial Reporting Quality

Abstract: Using a primary survey sample of 956 professionals working in accounting and finance departments, I examine the relationship between dark triad personality traits (narcissism, Machiavellianism, and psychopathy) of managers and reporting quality. I find that (a) accounting and finance departments where managers score high on the dark triad personality scale engage in more accounting manipulation and (b) that traditional risk management mechanisms are only partially effective in mitigating this effect. Contrary to the positive association between dark triad personalities and firm performance found in the management literature, my results show the negative impact of employing managers with dark personality traits and highlight the difficulty of controlling them using traditional risk management mechanisms.

4.1 Introduction

“By and large, in today’s regulatory environment, it’s virtually impossible to violate rules. . . and this is something that the public really doesn’t understand. . . it’s impossible for a violation to go undetected. Certainly not for a considerable period of time.” - Bernie Madoff. Founder and Chairman of Bernard L. Madoff Investment Securities LLC. 1960-2008.¹

Madoff’s statement one year prior to his arrest for “one of the largest frauds in history” (Frank et al. 2009), comparable in size only to the Enron case, is characteristic for probably most of the corporate accounting scandals. Considering that Madoff’s Ponzi scheme went undetected for at least 30 years (U.S. Attorney’s Office 2012), it is quite an accomplishment to credibly convince outsiders that breaking the rules in general is impossible and, of course, this also holds for Madoff’s own company.

For any individual to ‘successfully’ keep up a long-ranging fraud, it can be argued, requires certain predispositions. Unethical decision-making, lying for one’s own gain, a sense of superiority and lack of guilt and remorse are all consequences of being a dark-triad personality (Babiak and Hare 2006; Blickle et al. 2006; Corry et al. 2008; Stevens et al. 2012; Furnham et al. 2013; Boddy 2015) and, according to psychology research, such traits are particularly prevalent among fraud offenders (Clarke 2005; Kirkman 2005).

In this paper, I use theory and measures from personality psychology to investigate the effects of management personality traits on reporting quality. I focus on managers in the finance and accounting departments as they have the incentive and ability to influence the financial reporting process. I focus on so-called “dark triad” personality traits because managers with narcissistic, psychopathic and Machiavellian attributes are especially prone to exploit their ability to influence the reporting process in a self-serving way. I particularly look at the relationship between managers’ dark triad personalities and fraudulent accounting actions and how internal control mechanisms can moderate the relationship. In this setting, it is important to note that accounting manipulation is distinct from the related concept of earnings management. Accounting manipulation practices are those that violate GAAP. Earnings management practices, while masking the true underlying

¹“The Future of the Stock Market” speech by Bernie Madoff at the Philoctetes Center for the Multidisciplinary Study of the Imagination in New York on Oct 20, 2007

economic situation of a company, are still within the boundaries of GAAP. While academics have acknowledged that it is sometimes hard to delineate this boundary, I focus on practices that are clearly outside the discretion provided by GAAP, i.e. accounting manipulation.

I find a strong positive relationship between dark triad personality traits of managers and accounting manipulation. Using the logistic specification of the models, the results indicate that for a one-unit increase in dark triad score, the odds of engaging in fraudulent accounting increase by a factor of 2.49 ($p < 0.001$), keeping size and industry controls fixed. Furthermore, I also find that traditional risk control mechanisms do not easily mitigate these practices. I find that a whistle-blower policy is not related to a decrease in accounting fraud and that the internal audit function is only able to curb fraudulent behavior under some circumstances. Specifically, I find a strong relationship between the provider of the internal audit function and its ability to mitigate accounting fraud. Having a completely independent and outsourced internal audit function leads to a roughly 60% decrease of the negative impact of managers with dark triad personality on companies' accounting practices. The slopes are 0.72 ($p < 0.001$) for dark triad managers in companies with an in-house internal audit department and 0.27 ($p < 0.01$) for dark triad managers in companies with outsourced internal audit departments. I conjecture that this may be attributed to the fact that managers scoring high on the dark triad scale are, in fact, able to influence an internally staffed audit function, whereas it is harder for them to manipulate external providers of an internal audit function.

My results contribute to the literature in three ways. First, I provide additional evidence for the literature linking personality characteristics to financial reporting practices. In terms of research question my paper is closest to Ham et al. (2017) and Ge et al. (2011), whom both find manager-specific effects that help explain reporting quality, which is evidently decreased by accounting manipulation. My results complement both studies by showing that managerial personality darkness has a significant effect on fraudulent practices and show that standard internal controls are not only ineffective but may enable dark personalities to shine under certain circumstances. Second, by focusing on the moderating role of internal control mechanisms, I show that only a subset of common control functions help to keep the self-serving interest of managers in check. Third, by using the survey method and explicitly asking the participant about actions, I shed light into what avenues managers

take, if they want to influence reported earnings and show that the preferred option in this study is to *record revenue before completing all services*. In my sample, 55.4 % acknowledged that they engage in said practice and of that 41.8 % answered that they perform this action every quarter. The survey design also enables me to study fraud, which has yet to be detected by external parties and, thus, hard to examine with experimental or archival data. Being able to investigate ongoing fraudulent actions - information that would otherwise not be possible to obtain by any other data-gathering method - is a substantial contribution to the existing literature, as fraudulent reporting tends to remain hidden for long periods of time or even indefinitely (Zingales 2015).

Notwithstanding the contributions, the study has a number of caveats. First, financial reporting quality is a hard to measure and context-specific construct. Standard measures used in archival research for related concepts, such as earnings management models or measures for earnings persistence, are not available in survey research. For this reason, I used a series of questions on actual practices that can be considered typical actions used to manipulate accounting figures. On a spectrum from the highest quality and transparent reporting over to (arguably) “unnecessary” smooth - but legal - managed earnings, my proxy, measuring fraudulent activity, sits at the end of the spectrum. Finding a relationship between dark personalities and accounting manipulation would suggest that the less extreme forms of deteriorating reporting quality should also be affected by dark personality managers.

Second, the dirty dozen scale is commonly used and validated measure of personality characteristics (Jonason et al. 2013; Webster and Jonason 2013), however a relatively short scale (12 items). To reduce social desirability bias, I choose the shorter dirty dozen scale² and hide the questions within nondescript items. This way participants do not immediately sense that they are asked about a potentially negative personality trait. Using the dirty dozen scale instead of SD3 should not negatively impact the goal to show that personality of decision-makers is an under-explored but important factor influencing reporting quality.

Third, there are some endogeneity concerns as the survey enables me to find associations between the variables of interest but no clear causal relationship. Keeping the concerns in mind, the study design offers new and unique insights into the relationship between managerial effects and reporting quality that can complement recent findings with existing archival proxies, such

²compared to the alternative SD3 scale (Jones and Paulhus 2014).

as signature or picture size, relative compensation and use of first-person pronouns in earnings call (for example Ham et al. 2017; Olsen et al. 2014; Chatterjee and Hambrick 2007).

The rest of the paper is structured as follows. Section 2 provides the background and hypotheses, while Section 3 describes the method and design. Section 4 presents results and supplemental analyses, and Section 5 concludes.

4.2 Research Questions and Hypotheses

Corporate fraud is a topic that draws constant attention from the public, regulatory bodies, and academia. However, most of the time the attention starts too late, namely after the costs for shareholders, employers and possibly society of a large fraud case are already in the millions. As a reaction, standard setters and academia focus on fixing the rules, providing tighter guidelines and imposing stricter regulatory requirements on the firm. Apart from the considerable media attention that the perpetrators usually receive, the role of individuals only recently became of interest to research. Bertrand and Shoar (2003) are one of the first authors investigating the relationship between manager-specific traits and firm outcomes, and show that manager-fixed effects are an important factor in firm outcomes. In the accounting literature Ge et al. (2011) as well as Bamber et al. (2010) among other authors utilize the manager-fixed-effects approach to show that managers matter for a broad range of accounting choices, i.e., increasing operating leases or changing pension assumptions as well as for voluntary disclosure decisions. More recently, scholars tried to explain what drives these manager-fixed-effects and how personality fits into the picture.

4.2.1 Reporting Quality and Fraud

The link between managerial personality and fraudulent accounting practice, and ultimately reporting quality, is interesting to investigate because the operating, as well as financial decisions of managers, form the basis of the reported accounting figures. At the same time almost all large companies are using financial incentives based on earnings per share, stock prices and shareholder returns in their executives' compensation and incentive plans (Schmidt and Reda 2017; Davis 2009). So, managers have both the ability and the incentive to influence the reported earnings and performance figures,

which in turn have an impact on reporting quality. As there is no precise definition for reporting quality in the literature, scholars revert to measure reporting quality as an absence of negative actions. Actions that might make the accounting figures less transparent or timely are activities, such as earnings smoothing, earnings management, restatements and fraud. For most actions it is hard to delineate between quality improving or quality deteriorating consequences. Whether or not a more volatile earnings trend closer to the current economic reality, is a better indicator of the long-run earnings capabilities, compared to say, a smooth and earnings-managed trend, is still to be determined. According to Nelson and Skinner (2013) the interpretation of what constitutes reporting quality is dependent on management intent and decision context of the user. Fraudulent financial reporting is a clear sign of low (or no) reporting quality. As fraudulent accounting figures show a wrong and misleading view of a company's health and performance to outside stakeholders, it is important to get a better understanding of the determinants and potential deterrents of this practice.

4.2.2 Fraud and Personality

Since the publication of the seminal research article by Hambrick and Mason (1984) on upper echelons theory, the general link between managerial style and firm outcomes continues to receive attention in both managerial as well as accounting and finance research. Bringing corporate fraud into the picture is a more recent phenomenon. On a 2011 panel at the American Accounting Association's annual meeting on emerging issues in fraud research, Brody et al. (2012) pointed out that to prevent and detect fraudulent activities, auditors and regulators need to understand the behavioral component of people who commit fraud. In the end, every fraud case is perpetrated by an individual and not a company. Other researchers emphasize the importance of personality traits in fraud research as well. While Cohen et al. (2010) suggest that auditors should specifically focus on the behavior and attitudes of managers, Ramamoorti (2008) reminds us that fraud is a human endeavor and thus it is important to understand the personality of fraud offenders to better understand their behavior.

Yet, the particular link between fraud and personality is under-explored in the literature. Some recent papers looked at the effects of dark personality traits on accounting outcomes, such as accruals quality (Francis et al. 2008), propensity to be subjected to Accounting and Auditing Enforcement

Releases (Schrand and Zechman 2012) or misreporting (Murphy 2012). The three most prominent negative personality traits in the literature are narcissism, (sub-clinical) psychopathy and Machiavellianism together called the dark triad of personality.³ The existing accounting literature to date has emphasized narcissism of top executives as a potential determinant of accounting outcomes.⁴

The focus on narcissism can mainly be attributed to the fact that researchers have established that there are observable characteristics of narcissists in archival data that can be used as proxies for the underlying personality trait. Using measures such as signature size, the size of the picture in annual reports or the frequency of first-person pronouns in earnings conference calls enables archival researchers to measure narcissism, without having to subject managers to psychological tests, who are most likely unwilling to do so in the first place. To date, there are no established proxies in archival data for the traits of Machiavellianism and psychopathy, which might explain the lack of research for these two traits. However, there is a considerable overlap between the measures. While there might be noticeable differences in a clinical population, Furnham et al. (2013) argue that in the general population all three share a common core of callous manipulation. Paulhus and Williams (2002), who came up with the term dark triad, also acknowledge that they found a considerable overlap in empirical studies of the dark triad. All three traits manifest among other things as a tendency of self-promotion, emotional coldness, and socially evil character.

Psychology research found that individuals with a high Machiavellianism score tend to be more self-interested and opportunistic (Gunnthorsdottir et al. 2002). As such, Machiavellian characters are more likely to cheat and be able to rationalize their behavior (Cooper and Peterson 1980). They try to manipulate others for their own gain (Christie and Geis 1970) and believe that manipulation is the key to success in life (Paulhus and Jones 2015). Murphy (2012) found in an experimental setting that people who score high on the Machiavellianism test misreport both to a higher degree and with less guilt.

For narcissists, current research identifies a sense of entitlement, dominance, and superiority as their key features (Corry et al. 2008). Correspondingly, there is evidence of narcissists being prone to unethical behavior, such as

³For a review of the dark triad concept, see Furnham et al. 2013.

⁴For example, Rijsenbilt and Commandeur (2013) on fraud, Olsen et al. (2014) on performance, Olsen and Stekelberg on tax sheltering (2015), Frino et al. (2015) on earnings management, and Ham et al. (2017) on multiple reporting quality proxies.

cheating on their romantic partner (Buss and Shackelford 1997) and cheating to improve their academic performance (Menon and Sharland 2011). The accounting literature found links between narcissism, the most thoroughly studied personality characteristic, and less effective monitoring (Young et al. 2014; Chatterjee and Pollock 2016) and lower reporting quality due to CFO and CEO narcissism (Ham et al. 2017; Frino et al. 2015). Moreover, Ham et al. (2017) found a link between CFO narcissism and lower reporting quality in several dimensions, such as more earnings management, less timely loss recognition and a higher probability of restatement, all of which are still in the realm of legal accounting discretion. I am not aware of any study to date that explicitly looks at the propensity to engage in fraudulent practices.

Finally, psychopathy is considered to be the most negative trait of the dark triad (Rauthmann and Kolar 2012). Psychopaths are thrill-seeking individuals with low levels of empathy (Hare 1985; Lilienfeld and Andrews 1996), and tend not to experience remorse (Babiak and Hare 2006). People with psychopathic tendencies are found to be reckless, selfish and aggressive (Patrick 2007) and if in top management positions, pose the largest threat to business ethics (Marshall et al. 2015). In an organizational setting, psychopaths are willing to defraud the company they work for to get higher pay or promotion (Clarke 2005). According to Kirkman (2005), fraud is the psychopath's crime of choice.

Based on the prior literature, and the stark similarities between psychopaths, narcissists, and Machiavellians I believe it is important to consider all three variants of the dark triad when considering the impact of personality traits on accounting manipulation. Consequently, I expect managers scoring high on the dark triad scale to be more willing to engage in accounting fraud.

H1: Firms with managers scoring high on the dark triad scale manipulate accounting figures more than firms with managers scoring low on the scale.

4.2.3 Internal Control and Reporting Quality

The 2002 Sarbanes-Oxley (SOX) Act is a direct response to the accounting scandals in the early 2000s, most notably Enron. One significant change after

SOX is the heightened importance regulatory bodies place on internal controls, such as an internal audit department and whistle-blower policies. Research has found a positive association between strong internal controls and earnings quality (Doyle et al. 2007; Ashbaugh-Skaife et al. 2008). The internal audit function, in particular, serves as an important role in reducing earnings management (Prawitt et al. 2009) and protects companies from criminal behavior within the firm (Nestor 2004). Several authors point out that internal audit departments serve a critical role in detecting possible fraud, both by employees as well as outsiders (Luehlfiing et al. 2003; Belloli and McNeal 2006). Thus the literature is in consensus about the positive effects of having an internal audit function compared to not having one. However, there are opposing views on whether an in-house team or an outsourced provider can better perform the internal audit function. Carey et al. (2006) find that, consistent with model-based findings by Caplan and Kirschenheiter (2000), companies that decide to outsource the internal audit function see the external function as more competent and of higher quality. More recent findings show that an in-house internal audit function is more effective in identifying weaknesses and fraud detection (Coram et al. 2008). The authors point towards a greater familiarity with the systems in place and a much higher amount of time spent with actual auditing compared to outsourced providers. Having a whistle-blower policy in place should also be helpful in detecting fraud (Morgan 2005; Coram et al. 2008). What the literature has not answered so far is the interplay between managerial personality, its impact on internal control functions and the ensuing effect on accounting manipulation. Overall, the evidence is strongly in favor of having an internal control function compared to not having one when looking at accounting outcomes. The question remains, however, if internal control functions are also effective for companies with dark triad managers.

4.2.4 Personality and Internal Control

Upper echelons theory posits that in order to understand the strategy and performance of a company one must consider the managerial background characteristics and their actions (Hambrick and Mason 1984; Hambrick 2007). An extension to upper echelons theory is the “tone at the top” construct, stating that senior management in addition to directly influencing firm outcomes, also indirectly influences firm outcomes. As everyone in the firm looks towards the top for guidance, senior management effectively sets the

tone within the company (Schwartz et al. 2005; Schroeder 2002). The values of C-level executives, especially the CEO, are shown to affect the values and behavior of other members of the organization (Berson et al. 2008; Reed et al. 2011). Apart from the findings of Ham et al. (2017), showing that companies have more material weaknesses (their measure of weak internal control) if they have a narcissistic CFO, there is no research to my knowledge that looks at the potential moderating role of internal control functions within the relationship of managerial personality and reporting quality. However, in the organizational psychology literature, Boddy (2006) finds that psychopaths have a talent for using other people and concealing their real motives. Together with managements' ability and motivation to influence accounting records, Soltani (2014) finds that fraud cases often involve managers, who override control mechanisms that otherwise appear to work effectively. Anecdotal evidence supports this view. The CEO of the Daily Mirror, scoring high on the corporate psychopath scale, reportedly intimidated his staff and rules via a culture of fear (Boddy 2016). Considering the existing literature, I expect internal control mechanisms to work towards higher reporting quality even in a context of dark triad managers, albeit to a lesser extent.

H2a: The effect of dark personality managers on reporting quality is more pronounced in firms without an internal audit function than in firms with an internal audit function.

H2b: The effect of dark personality managers on reporting quality is more pronounced in firms without a whistle-blower policy than in firms where a whistle-blower policy is in place

4.3 Method and Design

4.3.1 Data and Sample Description

I use an on-line survey to gather information about personality traits of managers and instances of accounting fraud. Choosing a survey enables me to capture ratings of personality characteristics as well as reports about the presence and frequency of fraudulent accounting actions in companies' day-to-day operations. This information would otherwise not be to obtain by any other data gathering method.

I collect data with the help of Cint, a large panel exchange and survey respondent provider. Targeting specifically professionals from the United States, who work in either accounting or finance departments, I obtain data from 1,074 respondents that were able to pass a simple attention check (see Appendix II for all questions in the survey, including the attention check). Of those 1,074 respondents, who started the survey 957 finished it and 837 of them provided answers to all the questions relevant for the analysis (i.e., did not answer with the “I do not know” option). Thus the final sample size is 837 observations. Table 4.1 shows the distribution of respondents across different industries. The sample includes an over-representation of firms in the financial sector. The unit of analysis are the individual actions of employees with decision-making authority, i.e., managers. However, survey respondents are asked to answer the questions not about themselves, but about their immediate superior. This observant rating approach results in two advantages. First, the observations are possibly about the whole spectrum and hierarchy of a company’s management, from business unit managers to C-level executives, as 277/214 survey respondents are directors/managers or other employees with decision-making power themselves. The remaining 346 respondents are not in a managing position themselves and thus are answering about their direct business unit manager. Second, using an informant-scale approach and keeping the participant’s anonymity I reduce the risk of social desirability bias affecting the results.

Insert Table 4.1 here

Apart from social desirability bias, common method bias might be another issue when using data gathered by a survey. I use both procedural and statistical remedies to minimize common method bias, a similar strategy used by other accounting researchers (see for example Abernethy et al. 2011).

I follow best practices to enhance the validity of the survey procedure. First, the measurement of dependent and independent variables takes place at a maximum distance within the survey (Podsakoff et al. 2003; Chang et al. 2010). Second, as the independent variable of interest is measured with negatively loaded items, I hide them amongst a positively loaded scale to further reduce bias. Statistically, I conduct the Harman (1976) single-factor test to assess whether the correlations between variables are artificially inflated.

With an explained variance of 22.9 percent, I fail to find a single factor that accounts for the majority of co-variation within the data; an indication of low common method-bias (Abernethy et al. 2004).

4.3.2 Variable Description

Table 4.2 shows descriptive statistics for the main variables used in the model. Appendix II also contains all survey questions, their corresponding items and the Likert-scales utilized in this study. I use factor analysis to investigate whether the used scales load on the constructs they are supposed to measure and not on other constructs. The results suggest good reliability and construct validity (Hair et al. 2010; Chenhall 2005).

Insert Table 4.2 here

Accounting Manipulation

The dependent variable of interest ACCMANIP captures common actions undertaken by management to obscure and manipulate earnings figures. To my knowledge, there are no validated scales to measure the degree of accounting manipulation and fraud. Thus, I created a new scale, based on observable practices in the accounting and finance departments. The practices are from a book on financial statement analysis that focuses on detecting earnings and cash flow manipulation practices (Schilit and Perler 2010). In the survey, I ask the respondents to indicate on a scale from 1 to 5, 1 being never and 5 being frequently (every quarter), how often their supervisor engages in 12 different practices. The practices fall into the following five broad categories: (1) recording revenue prematurely, (2) recording revenue too late, (3) shifting current expenses to an earlier or later period, (4) shifting future expenses to the current period, and (5) failing to record or properly reduce liabilities. An example item for category 3 is: "Capitalizing normal operating costs to reduce expenses." I aggregate the answers to all items to a single variable. Factor analysis shows that the 12 items being used effectively capture actions that manipulate earnings figures (Cronbach's alpha = 0.96).

Dark triad personality traits

The primary independent variable of interest DARKTRIAD captures the dark personality traits of managers. Participants are asked to rate their manager's personality on the dirty dozen scale (Jonason and Webster 2010). The dirty dozen is a widely used and validated scale (see for example Miller et al. 2012; Webster and Jonason 2013) for assessing dark triad personality traits, mainly in the organizational psychology literature. The dirty-dozen scale comprises three separate 4-item sub-scales for narcissism, Machiavellianism, and psychopathy. The independent variable is formed by the arithmetic average of the three sub-scales. I hide the dirty dozen scale amongst a positively loaded 22 item scale that assesses general leadership behavior and randomizes the order of all questions to mitigate the possible bias of negatively framed questions. Cronbach's alpha of the dark-triad scale is 0.93, indicating very high internal consistency. Additionally, the dirty dozen scale is better suited for this study, as the items in the previously mentioned short dark triad scale (SD3) by Jones and Paulhus (2014) do not lend themselves well to being used in informant ratings.

Compared to the previously used proxies for dark personality traits in the accounting literature, the dirty dozen measure is the only one comprising all three negative personality traits. While Murphy (2012) focuses on Machiavellianism and its impact on misreporting using the MACH-IV scale (Christie and Geis 1970), most of the remaining research concerning personality focuses on narcissism (see for example Ham et al. 2017; Olsen et al. 2014; Olsen and Stekelberg 2015; Chatterjee and Hambrick 2007). To my knowledge, the only authors also investigating all three personality traits simultaneously are D'Souza and Lima (2015). However, their setting and research question is somewhat different. They use the short dark triad scale with 131 MBA students from Spain to investigate personality effects on opportunistic decision-making. Due to the recent questioning of the validity of signature size and first-person singular pronoun use as narcissism proxies (Koch and Biemann 2014; Carey et al. 2015), together with the conceptual and empirical overlap between narcissism, psychopathy and Machiavellianism (Paulhus and Williams 2002), it is fruitful to consider the dirty dozen scale as an additional proxy.

Internal control mechanism

I also ask participants about the presence of an internal audit function, creating a binary variable IA where 1 indicates the existence of an internal audit function, and 0 a lack thereof. Furthermore, participants that indicate the existence of an internal audit function are asked who is providing the internal audit function (completely in-house, outsourced to an external firm, or a combination of an internal and external firm), creating a categorical variable IAPROVIDER.

I further ask participants about the presence of a whistle-blower policy at their firm, creating a binary variable WBP where 1 indicates the existence of a whistle-blower policy, and 0 a lack thereof.

Finally, I collect information on the primary industry of the firm. The industry variable is based on the two-digit North American Industry Classification System (NAICS) codes. I asked the participants directly in which industry they work, due to the anonymous nature of the survey, which precludes the option to add such information later on manually. Also, industry might be an important control variable, due to differences in regulatory requirements, the skill level of employees or environmental uncertainty that potentially impact managers' ability to engage in fraudulent practices. Finally, participants are asked to provide information about the size (annual sales) and number of employees of the company they work for as further control variables.

4.3.3 Model Estimation

I argue that firms having managers with a high degree of malevolent personality traits will engage in more accounting manipulation. Operationalized I estimate the following main model:

$$ACCMANIP_i = \alpha_i + \beta_i DARKTRIAD + \beta_i INDUSTRY + \beta_i SALES + \beta_i EMPL + \epsilon_i$$

In addition, I hypothesize that having internal control mechanisms, such as an internal audit function and a whistle-blower policy, can reduce the overall impact of dark personality managers on accounting manipulation. In order to test the second hypothesis, I expand my main model by additional explanatory variables and interaction terms.

The dependent variable is an ordered categorical variable, based on a twelve-item, five-point Likert-scale. Thus, the observations for the dependent variable can fall in five distinct groups. As standard OLS assumptions are likely

to be violated in this case, I run all models with three different estimation methods (1) OLS with robust standard errors, (2) (Binary) Logistic Regression, and (3) Ordinal Logistic Regression to check if the OLS results deviate substantially from multinomial logistic regression estimation. While all three estimation methods lead to slightly different marginal effects, the direction and significance are identical in all three estimation methods. Given that the results are comparable and for simplicity's sake, I focus on the interpretation of OLS results throughout the next section.

4.4 Results

4.4.1 Descriptive Statistics and Correlation Matrix

Table 4.1 shows that across 21 industries, the finance sector is the most prominent in the sample with 35% (293) of all observations (837). The sample has on average 40 respondents per industry. Due to the high numbers in the finance sector, the number per industry drops to 24 respondents per sector, if looking at the median. Figures 4.1, 4.2, and 4.3, as well as Table 4.2, shows the distribution and summary statistics for the variables of interest. All of the variables exhibit a left-skew in their distributions. The skew is most pronounced in the dependent variable ACCMANIP, with a mean of 2.15 and median of 1.75, suggesting that most respondents are either never witnessing manipulative behavior or very infrequently. The independent variable DARKTRIAD, with a mean of 2.56 and median of 2.42, however, has only a slight left skew and appears to be closer to a normal distribution. Within the three sub-scales that are the basis for the DARKTRIAD variable, both Machiavellianism and psychopathy are somewhat left skewed with means and medians of 2.28/2.00 and 2.42/2.25 respectively. The narcissism scale is very close to a normal distribution with mean and median of 2.98 and 3.00 and a standard deviation of 0.97.

Insert Figure 4.1 here

Insert Figure 4.2 here

Insert Figure 4.3 here

Table 4.3 reports the Pearson correlations among the variables. I find a strong and positive association between the dark triad measure and the accounting manipulation measure. The correlations also show a very high positive association within the dark triad measure and between each sub-scale. Also, there is a positive association between the number of employees in a company as well as the annual sales levels with having an internal audit and whistle-blower policy within the company.

Insert Table 4.3 here

4.4.2 Hypothesis Testing

Table 4.4 reports the main regression results. The results from each estimation technique show a similar story. All coefficients have the same direction and the same variables are statistically significant in the ordinary least squares, logit and ordered logit models. The results show that managers with a dark triad personality engage in more accounting manipulation. Column 1 does not include variables for internal control functions and indicates that a one-unit increase in the dark triad scale leads to increase of the accounting manipulation scale of 0.55. Column 2 adds the internal control measures and the dark triad effect drops to 0.51. However, both internal control dummy variables are not significant in this specification. Columns 3 to 5 show the interaction effects between managerial personality traits and internal control mechanisms. In Column 5, with both interactions, the general pattern observed in previous models is repeated. Interestingly, the interaction effect shows that in companies with an internal audit function the detrimental effect of dark triad managers is stronger than in companies without an internal audit function. In fact, for companies without an internal audit function, a one-unit increase in the dark triad scale leads to an increase on the accounting manipulation scale by 0.25. In companies with an internal audit function, the effect is almost twice the size, with a one-unit increase in the dark triad scale corresponding to a 0.55 increase in the accounting manipulation scale.⁵

⁵The results for the models with interaction effects are not subject to multicollinearity, as can be seen in the later split-sample analysis of the effect of dark triad personality traits on accounting manipulation for companies with and without an internal audit department.

Insert Table 4.4 here

The binary logit and ordered logit regressions show the same picture. The logistic regression results indicate that managers with a dark triad personality engage in more accounting manipulation. A one unit increase on the dark triad scale increases the propensity to commit accounting manipulation by 22 percentage points. Also, having an internal audit function roughly doubles the tendency to engage in accounting manipulation for managers high on the dark triad scale. The probability to participate in accounting manipulation increases by 28 percentage points compared to 12 percentage points for companies with no internal audit function.

The marginal effects at the median in the ordered logistic regression are comparable to the OLS and logistic regression results. It shows that managers with a stronger dark triad personality engage in more accounting manipulation. A one unit increase on the dark triad scale increases the probability to move from level 2 on the accounting manipulation scale to level 3 by eight %-points. The interaction effect also shows that for companies with an internal control function dark triad managers are more than two times more likely to move the company from level 2 to level 3 on the accounting manipulation scale (7%-points), compared to companies with no internal audit function (3%-points).

The estimates in Table 4.4 are consistent with Hypothesis 1: Fraudulent accounting actions are significantly more common in firms with managers scoring high on the dark triad scale than for firms with managers scoring low on the scale. Surprisingly, I found contradictory evidence for Hypotheses 2a and 2b. For Hypotheses 2a, I do not find evidence that the effect of dark personality managers will be more pronounced in firms without an internal audit function than in firms with an internal audit function. Instead, the effect of dark triad managers is significantly stronger in firms with an internal audit function. For Hypotheses 2b, I only find significant results in OLS model 4, which does not include an interaction between dark triad managerial traits and internal audit. I do not find any significant results if I include both dark triad interactions - internal audit and whistle-blower policy - such as in OLS model 5. Thus, having a whistle-blower policy in place seems to make no difference overall.

The surprising result is that for managers with a high dark triad score there is a higher correlation to engage in accounting manipulation if the company has an internal control function. To investigate this further, I looked at a more detailed level of analysis and used the participants' answers about the nature of the internal control function at their company.

The results in Table 4.5 show the 397 observations where participants indicated that their company has an internal control function. Instead of the presence of an internal audit function, I looked at the structure of it. The baseline here is an internal control function that is staffed by internal personnel. The model shows, same as in the earlier specification, that managers with dark triad personality traits engage in more accounting manipulation. A one unit increase in dark triad corresponds to a 0.57 increase on the accounting manipulation scale (compared to a 0.55 increase in the yes/no dummy specification of internal audit in OLS model 1). However, this pattern reverses if the internal control function is outsourced and staffed by external personnel. The interaction effect of dark triad personality score and outsourced internal control functions shows that a one-unit increase in the dark triad score corresponds to a 0.27 increase on the accounting manipulation scale. Compared to the baseline of a fully in-house internal audit function with a slope of 0.72 this is a roughly 60% decrease. It appears that an internal audit function is only effective in taming the adverse effects of dark triad managers, if external personnel staffs it. As survey answers are the basis of the results, the findings are correlational, not causal. A discussion of potential consequences and related limitations follows in the next section.

Insert Table 4.5 here

One of the concerns is, that multicollinearity between the dark triad and internal audit variable is driving the results in the interaction model. To check for this issue, I estimate another model, comparing subsamples of companies with or without internal audit functions. Splitting the sample has two effects: (1) I am no longer able to specially look at interaction variables with differing intercepts and slopes but (2) I can still compare differences in slopes for the dark triad variable depending on whether or not the company they work for has an internal audit function, without the concern of multicollinearity between the dark-triad and internal audit variables.

The results in Table 4.6 indicate that managers scoring higher on the dark triad scale engage in more accounting manipulation, both in the subset for companies without an internal audit department and for companies with such a department. However, in the former case a one-unit increase on the dark triad scale only leads to a 0.24 increase on the accounting manipulation scale, compared to a 0.6 increase on the accounting manipulation scale for companies with an internal audit department.

Insert Table 4.6 here

Another concern is that the results might be driven by industry specifics, since a large degree (35% in the whole sample) of survey respondents work in the finance or insurance industry (see Table 4.1). Thus, I split the sample in respondents from people working in the finance or insurance industry and people in non-finance related industries. Table 4.7 shows that managers scoring higher on the dark triad scale engage in more accounting manipulation, both in the finance and insurance industries as well as in non-finance related industries. However, in the former case a one-unit increase on the dark triad scale leads to a 0.71 increase on the accounting manipulation scale, compared to only a 0.47 increase for companies in non-finance related industries. Again, getting a precise estimate of the magnitude of the effect is not the goal of this survey paper and a task better suited for large-scale empirical-archival research (Libby et al. 2002).

Insert Table 4.7 here

4.5 Discussion

From upper-echelons theory (Hambrick and Mason 1984) to the managerial style effects literature starting with Bertrand and Shoar (2003) research has shown that personality traits, especially of top management personnel, can influence how an organization makes decisions and ultimately affect firm outcomes.

Specifically, looking at malevolent personality traits the research in accounting so far has focused on archival studies investigating CEO narcissism and its impact on real earnings management (Olsen et al. 2014), CFO narcissism and reporting quality (Ham et al. 2017), and experimental evidence from accounting students on Machiavellianism and rationalization of misreporting (Murphy 2012). Further experimental evidence established that requiring range disclosures for managerial estimates reduces aggressive reporting by management and that the effect is strongest for managers scoring high on all three dark triad personality traits (Majors 2016).

Arguably, most employees with decision-making authority for accounting figures may be relevant for reporting quality. However, so far only top management positions have been investigated. I examine the relation between dark triad personality traits of managers, as measured by the dirty dozen instrument (Jonason and Webster 2010) in the accounting and finance departments of US companies and a firm's tendency to engage in accounting manipulation. Effectively, I use committed, but undiscovered accounting fraud as a proxy for financial reporting quality. I use a survey setting, where participants rate their immediate superior on dark triad personality traits as well as answer questions about how prevalent certain accounting manipulation practices are in their company. The results indicate that dark personality traits are positively associated with accounting manipulation, controlling for industry, size, and number of employees in the company. Interaction effects further show that, in the case of whistle-blower policies, internal control mechanisms are not entirely effective in curbing the negative impact of dark triad managers and that having an internal audit function is associated with a higher degree of manipulation by dark triad managers. More in-depth analysis shows that the composition of the internal audit function matters. While dark triad managers are associated with a higher degree of accounting manipulation in cases where the internal audit function is composed of in-house personnel, the level of accounting manipulation decreases in companies with an outsourced internal audit department. This suggests that managers with dark personalities are able to manipulate and take advantage of internal audit functions that are staffed with in-house personnel. The results are robust to different estimation techniques and subsample analysis.

However, the study is subject to certain limitations. First, a directly observable measure of management personality would be ideal. As self-rated measures or professional psychological assessments of managers are unlikely to

come by (Koch and Biemann 2014), I employ informant-based rating via the dirty dozen scale.

The second limitation is related to the reporting quality proxy. Standard (calculated) proxies such as earnings management, earnings smoothness or the number of material weaknesses are impossible to employ in survey-based research. Choosing a self-developed scale for financial reporting fraud makes it difficult to compare the findings directly with studies in the field. The advantage of the proxy, however, is its unique nature. I am aware of no other study focused on accounting fraud that can detect ongoing, yet undiscovered fraudulent actions in the corporate setting. Concerning the comparability of the findings, the results are in line with extant research that dark triad traits of top executives have a detrimental effect on reporting quality (Ham et al. 2017; Murphy 2012; Clarke 1993).

Third and last, a common concern in survey-based research is that the results are affected by endogeneity issues. Given the data, I am not able to make causal claims about the stated relationship between dark triad managers and accounting fraud. I cannot rule out the possibility that the association I find might have a causal arrow that points the other way and that managers with dark personality traits self-select into firms that engage in accounting fraud. However, I see few reasons why causation should run this way. One reason dark triad personalities specifically choose to work in companies with reporting quality shortcomings might be their need for attention and thrill-seeking (Paulhus and Jones 2015). Being able to change a company and be viewed as a star turnaround manager might, on the one hand, be a motivation to join such a company. On the other hand, putting company interests before their own interests is atypical for dark personalities so I am cautiously optimistic about the validity of my findings. Nevertheless, the alternative explanation can be a fruitful avenue for time- and manager-matched panel-based research.

Apart from the reverse causality issue, there may be omitted variable bias, such that the managerial personality variable is only picking up unobserved firm effects. Anonymity of survey participants is a trade-off between getting the most accurate measurements of the variables of interest and not being able to control for a broad variety of firm-specific effects. Even though I can control for the specific industry and size of the company, there might still be unobserved firm characteristics affecting the presence and intensity of fraud. This issue is of particular concern for the moderating effect of internal audit departments. It could be the case that the dummy variable for having an in-

ternal audit department or not is picking up on “high fraud risk” in general because high fraud risk might lead to a company having an internal audit department. Together with the results on the composition of internal audit functions this, however, seems unlikely. I am not aware of any research indicating that having an in-house or outsourced internal audit function is consistently related to higher or lower fraud risk and not just a matter of company preference. For example, James (2003) showed that outsourcing does not affect investors perception of fraud protection. Although the findings on the composition of internal audit departments strengthen the plausibility of the main results, they are still opposite to findings by Coram et al. (2008), showing that organizations are more likely to detect and report fraud if they have their internal audit function in-house. In their study of 491 companies in Australia and New Zealand on internal controls and misappropriation of assets, managerial personality traits were not part of the research focus. Thus my finding is an important contribution towards a better understanding of the role of internal audit functions. Having a high degree of dark triad managers within the company might reverse the prior findings of Coram et al. (2008) and shows the importance for investors and regulators of choosing the appropriate internal control mechanism based on companies’ executive teams.

Keeping these concerns in mind, the study design offers new and unique insights into the relationship between managerial effects and reporting quality. Asking practitioners directly about their assessment of managerial personality and the frequency of certain fraudulent actions helped to show the important role of executive personality and complements recent archival and experimental findings. The survey design also enables me to study so far undetected fraud, which is almost impossible to examine with experimental or archival data. Being able to investigate ongoing fraudulent actions - information that would not be possible to obtain by any other data gathering method - is a big contribution to the existing literature, since fraudulent reporting tends to remain hidden for long periods of time or even indefinitely (Zingales 2015). I further contribute to the literature by exploring the role of the previously unhypothesized interrelated nature of personality, internal control, and reporting quality. It would be useful for other researchers to follow up with studies on the composition of internal audit functions and their effectiveness in preventing fraud in different managerial style settings. Borrowing from existing literature on audit committee effectiveness, future research on internal audit effectiveness might find comparable results on the

limited effectiveness of internal controls, if the controls are not strictly independent (see for example Abbott and Parker 2000; Bronson et al. 2009; Karamanou and Vafeas 2005). The study also highlights the importance for practitioners, corporate governance bodies and regulators to recognize the role of the individual. People with divergent traits and personality characteristics might react differently to the existing set of rules and incentives. Putting practices in place to increase awareness of managers' predispositions might be a valuable first step.

4.6 Appendix

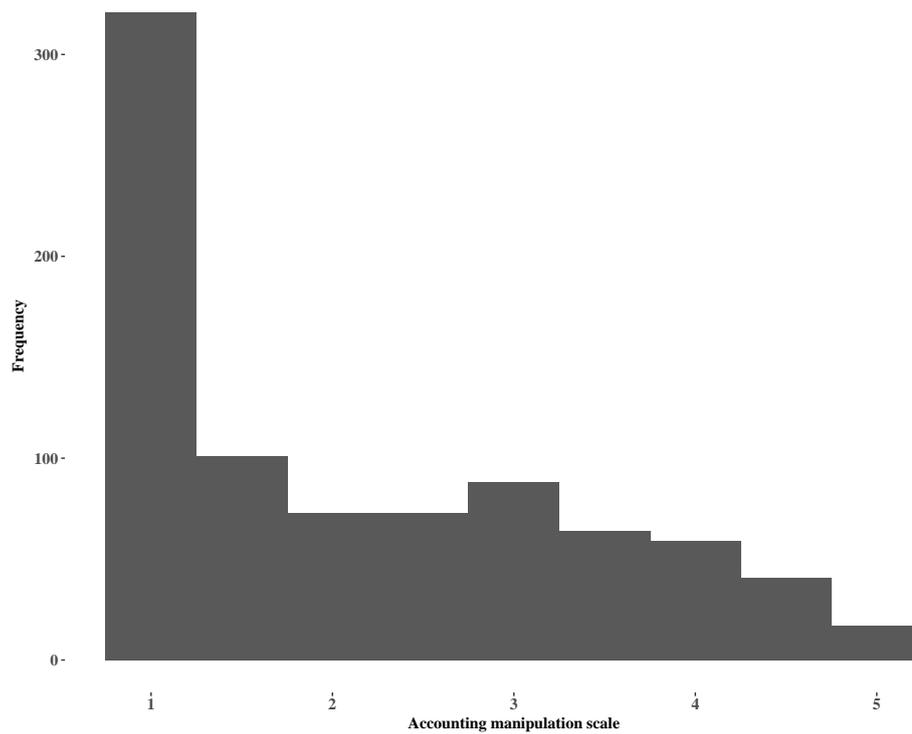


FIGURE 4.1: Distribution of Dependent Variable 'Accounting Manipulation'

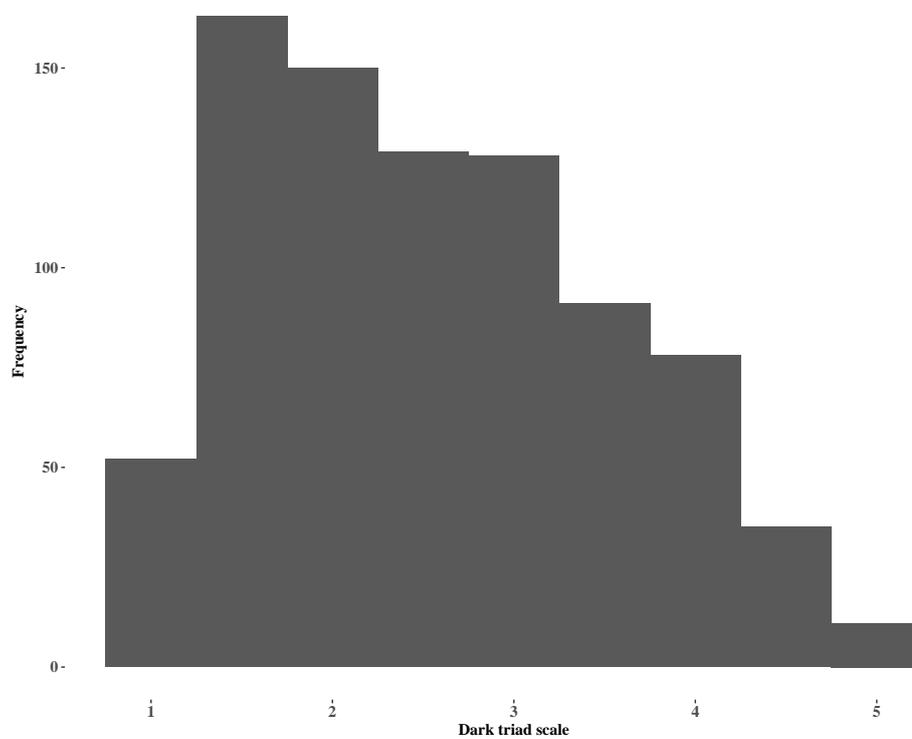


FIGURE 4.2: Distribution of Independent Variable 'Dark Triad'

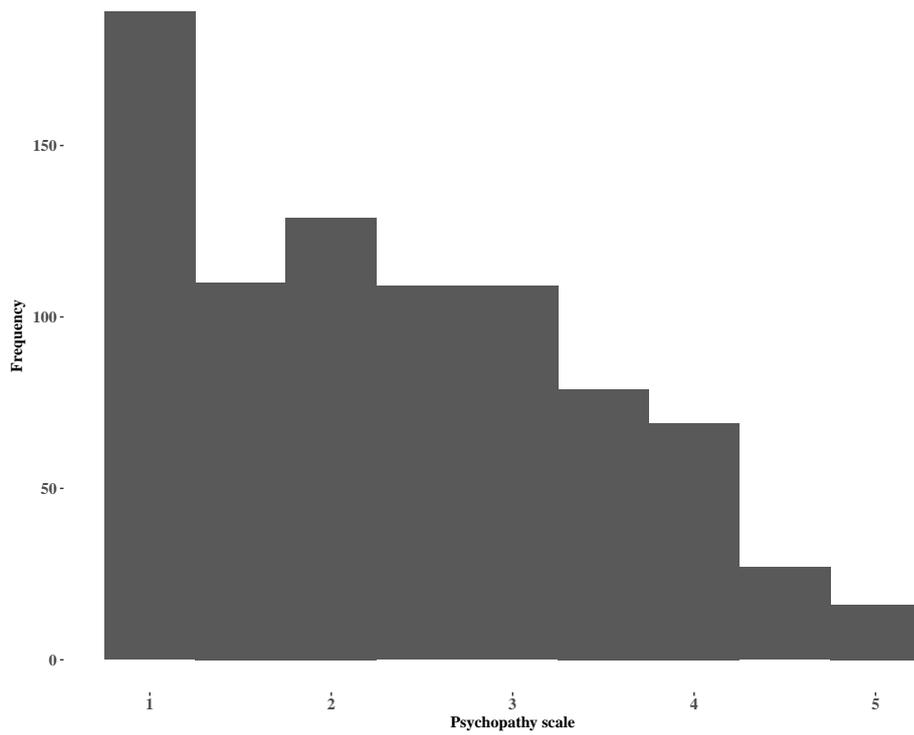


FIGURE 4.3: Distribution of scores on psychopathy scale

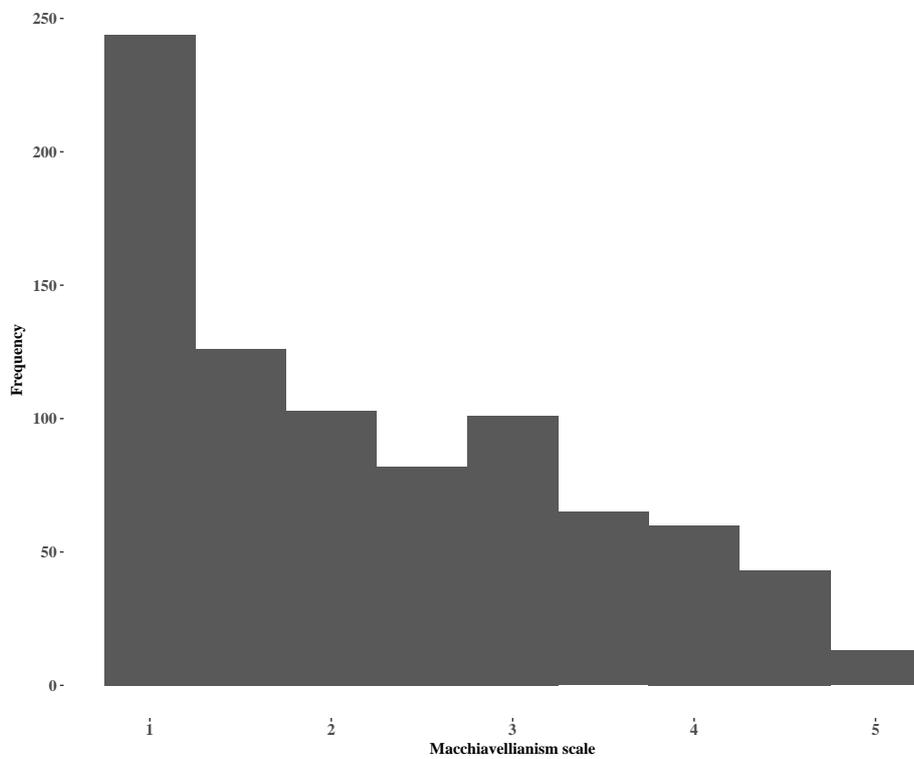


FIGURE 4.4: Distribution of scores on Machiavellianism scale

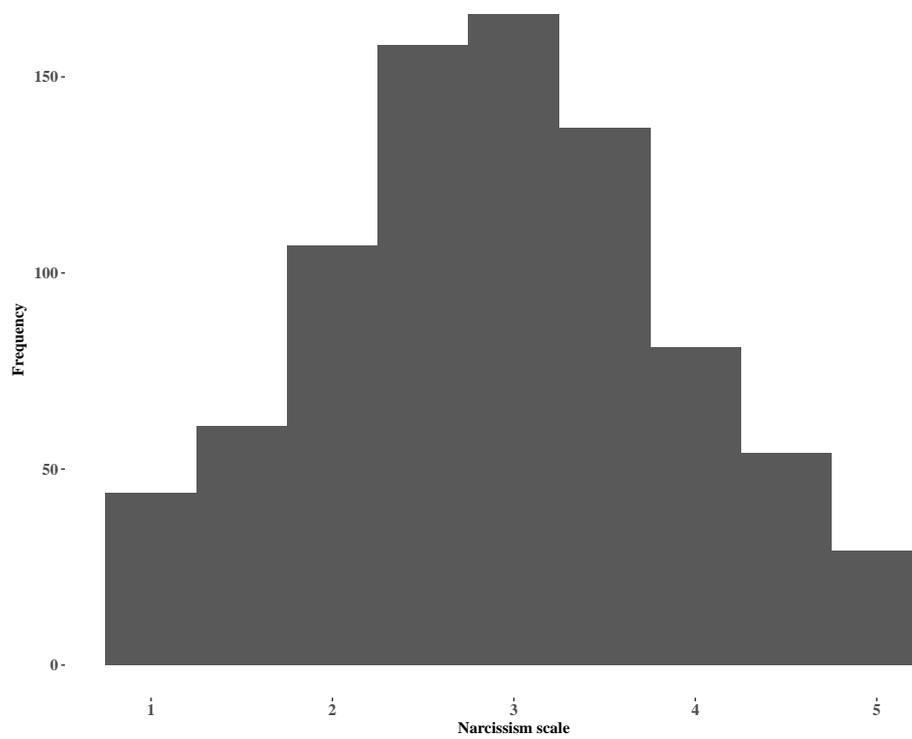


FIGURE 4.5: Distribution of scores on narcissism scale

TABLE 4.1: Observations Per Industry

	Industry	n
1	Finance or insurance	293
2	Professional, scientific or technical services	80
3	Other services (except public administration)	75
4	Manufacturing	55
5	Health care or social assistance	48
6	Retail trade	40
7	Educational services	36
8	NGOs or non-profit organizations	32
9	Unclassified establishments	31
10	Construction	24
11	Management of companies or enterprises	24
12	Utilities	18
13	Wholesale trade	18
14	Real estate or rental and leasing	14
15	Arts, entertainment or recreation	12
16	Admin, support, waste management or remediation services	11
17	Transportation or warehousing	8
18	Accommodation or food services	7
19	Forestry, fishing, hunting or agriculture support	6
20	Information	4
21	Mining	1

TABLE 4.2: Descriptive Statistics

Variable	n	q25	mean	median	q75	min	max	sd
Accounting Manipulation	837	1.00	2.18	1.75	3.08	1.00	5.00	1.21
Dark Triad	837	1.75	2.60	2.50	3.33	1.00	5.00	0.98
Machiavellianism	837	1.25	2.32	2.00	3.25	1.00	5.00	1.17
Narcissism	837	2.25	3.02	3.00	3.75	1.00	5.00	0.98
Psychopathy	837	1.50	2.45	2.25	3.25	1.00	5.00	1.11
Internal-audit 0/1	n	0	1	2	3			
Whistle-blowing 0/1	837	224	613					
Internal-audit -who-	597	255	342					
	580		202	143	235			

Variable Definitions: Accounting Manipulation = 12 item scale from 1 to 5 measuring illegal accounting practices based on Schilit and Perler (2010); Darktriad = Composite Scale from 1 to 5 measuring managerial personality traits (narcissism, machiavellianism, psychopathy) based on Jonason and Webster (2010); Narcissism = Sub-scale focused on narcissism based on Jonason and Webster(2010); Machiavellianism = Sub-scale focused on machiavellianism based on Jonason and Webster (2010); Psychopathy = Sub-scale focused on psychopathy based on Jonason and Webster (2010); Internalaudit 0/1 = Dummy variable indicating a company with or without an internal audit department; Whistle-blowing policy 0/1 = Dummy variable indicating a company with or without a whistle-blowing policy; Internalaudit -who- = Categorical variable indicating the staffing structure of the internal audit department.

TABLE 4.3: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Accounting Manipulation									
(2) Dark Triad	0.50***								
(3) Narcissism	0.41***	0.85***							
(4) Machiavellianism	0.51***	0.95***	0.71***						
(5) Psychopathy	0.44***	0.92***	0.64***	0.85***					
(6) Internal-audit 0/1	0.09*	0.05	0.09**	0.04	0.00				
(7) Whistle-blowing policy 0/1	0.08	0.11*	0.14***	0.07	0.08*	0.50***			
(8) Industry	-0.05	-0.02	-0.04	-0.02	0.00	-0.02	-0.03		
(9) Number of Employees	0.08*	0.04	0.05	0.03	0.04	0.37***	0.45***	-0.05	
(10) Annual Sales	0.01	0.03	0.04	0.02	0.02	0.31***	0.27***	-0.10**	0.58***

Variable Definitions: Accounting Manipulation = 12 item scale from 1 to 5 measuring illegal accounting practices based on Schilit and Perler (2010); Darktriad = Composite Scale from 1 to 5 measuring managerial personality traits (narcissism, machiavellianism, psychopathy) based on Jonason and Webster (2010); Narcissism, Machiavellianism and Psychopathy = 4-item subscales from Darktriad measure based on Jonason and Webster (2010); Internalaudit 0/1 = Dummy variable indicating a company with or without an internal audit department; Whistle-blowing policy 0/1 = Dummy variable indicating a company with or without a whistle-blowing policy; Industry = 21 level variable indicating a firm's industry, based on NAICS code; Number of Employees = 8 level variables indicating the number of employees of the respondents firm. Annual Sales = 6 level variables indicating the size (annual revenue) of the respondents company.

TABLE 4.4: Models for the Effect of Managerial Dark Triad Personality on Accounting Manipulation

	OLS1	OLS2	OLS3	OLS4	OLS5	Logit 1	Logit 2	Logit 3	Logit 4	Logit 5	Ordered Logit 1	Ordered Logit 2	Ordered Logit 3	Ordered Logit 4	Ordered Logit 5
(Intercept)	-0.01 (-0.02)	-0.21 (-0.63)	0.47 (1.24)	0.17 (0.46)	0.53 (1.36)										
Darktriad	0.55*** (14.91)	0.51*** (11.34)	0.26** (2.82)	0.38*** (5.32)	0.25* (2.54)	0.22*** (9.86)	0.21*** (7.62)	0.11* (2.50)	0.18*** (4.56)	0.12* (2.56)	0.08*** (7.06)	0.06*** (5.54)	0.03** (2.68)	0.05*** (4.12)	0.03* (2.47)
Audit 0/1		-0.01 (-0.12)	-0.93** (-2.95)	-0.00 (-0.04)	-0.82* (-2.53)		0.01 (0.08)	-0.36* (-2.22)	0.01 (0.11)	-0.41* (-2.21)		0.01 (0.63)	-0.05*** (-3.55)	0.01 (0.61)	-0.06*** (-3.92)
WBP 0/1		-0.03 (-0.26)	-0.03 (-0.26)	-0.61* (-2.23)	-0.24 (-0.92)		0.01 (0.22)	0.02 (0.26)	-0.09 (-0.58)	0.12 (0.66)		0.00 (0.02)	-0.00 (-0.08)	-0.06* (-2.19)	-0.02 (-0.57)
Darktriad x Audit 0/1			0.34** (3.21)		0.30** (2.69)			0.14* (2.44)		0.16* (2.39)			0.04** (3.06)		0.04** (2.61)
Darktriad x WBP 0/1				0.21* (2.33)	0.08 (0.85)				0.04 (0.72)	-0.04 (-0.61)				0.02 (1.92)	0.01 (0.55)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R ²	0.35	0.38	0.39	0.38	0.39										
Adj. R ²	0.32	0.34	0.35	0.35	0.35										
Num. obs.	837	597	597	597	597	837	597	597	597	597	837	597	597	597	597
RMSE	0.99	1.01	1.00	1.01	1.00										
Log Likelihood						-462.33	-316.39	-313.44	-316.13	-313.25	-1141.69	-816.63	-810.82	-814.67	-810.67
Deviance						924.66	632.78	626.88	632.26	626.51	2283.38	1633.25	1621.64	1629.33	1621.33
AIC						992.66	704.78	700.88	706.26	702.51	2357.38	1711.25	1701.64	1709.33	1703.33
BIC						1153.48	862.89	863.38	868.76	869.40	2532.38	1882.54	1877.31	1885.01	1883.40

Regression coefficients for all models show marginal effects. For ordered logit the marginal effects are at the mean. T-values/z-values in parenthesis. OLS models with robust standard errors (MacKinnon and White (1985)). * p < 0.05 ** p < 0.01 *** p < 0.001. Variable Definitions: Darktriad = Composite Scale from 1 to 5 measuring managerial personality traits (narcissism, machiavellianism, psychopathy) based on Ionescu and Webster (2010); Internal Audit 0/1 = Dummy variable indicating a company with or without an internal audit department; WBP 0/1 = Dummy variable indicating a company with or without a whistle-blowing policy; Controls = Dummy variables for Industry, Annual Sales and Number of Employees; Dependent variable Accounting Manipulation = 12 item scale from 1 to 5 measuring illegal accounting practices based on Schilit and Perler (2010). Dependent variable as continuous for OLS 1-5 and Ordered Logit 1-5; as binary variable for Logit 1-5.

TABLE 4.5: Detailed analysis on who runs the internal audit function

	OLS y= ACCMANIP	OLS y= ACCMANIP
(Intercept)	0.62 (1.45)	0.23 (0.50)
Darktriad	0.57*** (10.62)	0.72*** (6.82)
Internal Audit -external team-	-0.31* (-2.17)	1.02* (2.32)
Internal Audit - mixed team-	-0.22 (-1.82)	0.27 (0.91)
WBP 0/1	0.03 (0.28)	0.08 (0.27)
Darktriad x WBP 0/1		-0.02 (-0.17)
Darktriad x IA -external team-		-0.45** (-3.21)
Darktriad x IA -mixed team-		-0.16 (-1.53)
Controls	<i>yes</i>	<i>yes</i>
R ²	0.47	0.48
Adj. R ²	0.42	0.43
Num. obs.	397	397
RMSE	0.99	0.98

Regression coefficients are presented with t-values in parenthesis and with robust standard errors (MacKinnon and White (1985)). * p <0.05 ** p <0.01 *** p <0.001. Variable Definitions: Darktriad = Composite Scale from 1 to 5 measuring managerial personality traits (narcissism, machiavellianism, psychopathy) based on Jonason and Webster (2010); Internal Audit - external team - = Dummy variable indicating a company with an internal audit department that is staffed by external people; Internal Audit - mixed team - = Dummy variable indicating a company with an internal audit department that is staffed by both internal and external people; WBP 0/1 = Dummy variable indicating a company with or without a whistle-blowing policy; Controls = Dummy variables for Industry, Annual Sales and Number of Employees; Dependent variable Accounting Manipulation = 12 item scale from 1 to 5 measuring illegal accounting practices based on Schilit and Perler (2010).

TABLE 4.6: Internal Audit Subsample Analysis

	Subset IA 0	Subset IA 1
(Intercept)	0.25 (0.60)	0.45 (1.20)
Darktriad	0.24* (2.37)	0.60*** (11.73)
Whistle-blowing policy 0/1	-0.16 (-0.59)	0.05 (0.39)
Controls	<i>yes</i>	<i>yes</i>
R ²	0.38	0.46
Adj. R ²	0.25	0.42
Num. obs.	187	410
RMSE	0.96	0.99

Regression coefficients are presented with t-values in parenthesis and robust standard errors (MacKinnon and White (1985)). * p < 0.05 ** p < 0.01 *** p < 0.001. Subset Definition: The sample is split into respondents who work in firms with an internal audit department and respondents who work in firms without an internal audit department. Variable Definitions: Darktriad = Composite Scale from 1 to 5 measuring managerial personality traits (narcissism, machiavellianism, psychopathy) based on Jonason and Webster (2010); Whistle-blowing policy 0/1 = Dummy variable indicating a company with or without a whistle-blowing policy; Controls = Dummy variables for Industry, Annual Sales and Number of Employees; Dependent variable Accounting Manipulation = 12 item scale from 1 to 5 measuring illegal accounting practices based on Schilit and Perler (2010).

TABLE 4.7: Finance Industry Subsample Analysis

	Subset Finance Industry	Subset Non-Finance Industry
(Intercept)	0.29 (0.91)	0.38 (1.58)
Darktriad	0.71*** (10.46)	0.47*** (8.31)
Internal Audit 0/1	-0.29 (-1.36)	0.08 (0.53)
Whistle-blowing policy 0/1	-0.16 (-0.90)	0.02 (0.12)
Controls	yes	yes
R ²	0.39	0.27
Adj. R ²	0.35	0.24
Num. obs.	212	385
RMSE	1.08	1.00

Regression coefficients are presented with t-values in parenthesis and robust standard errors (Mackinnon and White (1985)). *p <0.05**p <0.01***p <0.001. Subset Definition: The sample is split into respondents who work in the Finance / Insurance industry and respondents who work in other industries. Variable Definitions: Darktriad = Composite Scale from 1 to 5 measuring managerial personality traits (narcissism, machiavellianism, psychopathy) based on Jonason and Webster (2010); Internal Audit 0/1 = Dummy variable indicating a company with or without an internal audit department; Whistle-blowing policy 0/1 = Dummy variable indicating a company with or without a whistle-blowing policy; Controls = Dummy variables for Annual Sales and Number of Employees; Dependent variable Accounting Manipulation = 12 item scale from 1 to 5 measuring illegal accounting practices based on Schilit and Perler (2010).

Appendix II

SURVEY QUESTIONS

At which department do you primarily work within at your organization?

- Accounting
- Administration
- Customer Service
- Finance
- Human Resources
- Legal
- Marketing
- Sales
- IT
- Other
- I don't work

Everyone has hobbies. Nevertheless, we would like you to skip this question to show that you are reading carefully. Do not click any of the buttons corresponding to bike riding, hiking, swimming, playing sports, reading or watching TV.

- Bike riding
- Hiking
- Swimming
- Playing sports
- Reading
- Watching TV

Introduction You are about to participate in an academic study where you will be asked questions about the business that you work for. Your participation is completely anonymous, and your identity is not known, we would therefore kindly ask you to be as truthful as possible.

Does your organization have a whistleblowing policy?

- Yes
- No
- I don't know

Does your organization have an internal audit function?

- Yes
- No
- I don't know

Who performs the internal audit function?

- Own staff
- External firm
- Combination
- I don't know

Please answer the following questions about your direct supervisor at work.

On a scale from:

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
-------------------	-------------------	----------------------------	----------------	----------------

- He/she lets group members know what is expected of them
- He/she decides what shall be done and how it shall be done
- He/she tends to manipulate others to get his/her way
- He/she makes sure that his part in the group is understood
- He/she schedules the work to be done
- He/she maintains definite standards of performance
- He/she has a desire to be admired
- He/she tends to lack remorse
- He/she asks that the group members follow standard rules and regulations

- He/she explains the way any task should be carried out
- He/she is friendly and polite
- He/she tends to be unconcerned with the morality of his/her actions
- He/she uses deceit or lies to get his/her way
- He/she does little things to make it pleasant to be a member of the group
- He/she puts suggestions made by the group into operation
- He/she treats all group members as his/her equals
- He/she gives advance notice of changes
- He/she tends to be callous or insensitive
- He/she uses flattery to get his/her way
- He/she keeps to himself
- He/she looks out for the personal welfare of group members
- He/she is willing to make changes
- He/she tends to seek prestige and status
- He/she helps me overcome problems which stop me from carrying out my task
- He/she helps me make working on my tasks more pleasant
- He/she tends to be cynical
- When faced with a problem, he/she consults with his/her subordinates
- He/she tends to exploit others towards his/her own end
- Before making decisions, he/she gives serious consideration to what his/her subordinates have to say
- He/she asks subordinates for their suggestions concerning how to carry out assignments
- He/she tends to expect special favors from others
- Before taking action he/she consults with his/her subordinates
- He/she asks subordinates for suggestions on what assignments should be made
- He/she wants others to pay attention to him/her

How frequently does your company engage in the following accounting practices? Your responses are completely anonymous.

On a scale from:

Never	Almost never (once every two years)	Rarely (once a year)	Sometimes (once every two quarters)	Frequently (every quarter)
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- Recording revenue prior to completing all services
- Recording revenue prior to product shipment
- Recording revenue for products that are not required to be purchased
- Recording revenue for sales that did not take place
- Amortizing costs too slowly
- Capitalizing normal operating costs in order to reduce expenses
- Failing to write down or write off impaired assets
- Failing to record expenses and liabilities when future services remain
- Changing accounting assumptions to foster manipulation
- Creating a rainy day reserve as a revenue source to bolster future performance
- Holding back revenue
- Accelerating expenses into the current period

What is your gender?

- Male
- Female

What is your age?

- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 or over

What is the highest level of education you have completed?

- High School / GED
- Some College
- Bachelors Degree
- Masters Degree or above

What is your professional position in the organization you work for?

- Director/Manager
- Other employee with decision-making power
- Not a managing position

In which industry are you employed?

- Forestry, fishing, hunting or agriculture support
- Mining
- Utilities
- Construction
- Manufacturing
- Wholesale trade
- Retail trade
- Transportation or warehousing
- Information
- Finance or insurance
- Real estate or rental and leasing
- Professional, scientific or technical services
- Management of companies or enterprises
- Admin, support, waste management or remediation services
- Educational services
- Health care or social assistance
- Arts, entertainment or recreation
- Accommodation or food services
- NGOs or non-profit organizations

- Other services (except public administration)
- Unclassified establishments

How many employees work in your organization?

- 1-50
- 51-250
- 251-500
- 501-1,000
- 1,001-5,000
- 5,001-10,000
- 10,001-25,000
- 25,001 or more

What is the annual sales revenue of your organization?

- \$0-\$99,999
- \$100,000-\$999,999
- \$1,000,000-\$4,999,999
- \$5,000,000-\$9,999,999
- \$10,000,000 - \$99,999,999
- \$100,000,000 or above

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Appendix A

Publication Details

The cumulative dissertation is composed of an introductory chapter and three scientific articles. Each chapter is a self-contained research paper. This appendix provides publication details for each paper.

Paper I (Chapter 2):

"Do Family Firms Engage in Less Earnings Management? A Meta-Analysis"

Authors: Tim Hasso, Martin Mutschmann, Dominik Wagner

Abstract: This study explores the relationship between family firm status and earnings management by meta-analyzing 37 primary studies and 305 effect sizes. In doing so we attempt to explain the variation and conflicting findings in prior work. We find that on average the relationship between family firm status and earnings management is negative. We also find that much of the variation in prior studies can be explained by their choices in operationalizing earnings management, the chosen study design, and the institutional setting that the studies drew their sample from.

Publication details: Working Paper.

Paper II (Chapter 3):

"Do Institutional Owners Deter Earnings Management? A Meta-Analysis"

Authors: Martin Mutschmann, Tim Hasso

Abstract: This study investigates the relation between institutional ownership and earnings management by meta-analyzing 511 effect sizes nested in 87 primary studies. We find that on average the relation between institutional ownership and earnings management is slightly negative, with a mean effect size of -0.02 ($p < 0.001$) indicating that there is evidence to suggest that institutional owners do in fact deter earnings management. However, we find that much of the variation in effect sizes can be explained by the operationalization of earnings management, the operationalization of institutional ownership, the inclusion of firm specific control variables, the empirical design of primary studies as well as the country specific institutional setting that the primary studies drew their sample from.

Publication details: Working Paper.

Paper III (Chapter 4):

"The Fish Rots From The Head Down: Managerial Personality and Financial Reporting Quality"

Author: Martin Mutschmann

Abstract: Using a primary survey sample of 956 professionals working in accounting and finance departments, I examine the relationship between dark triad personality traits (narcissism, machiavellianism, and psychopathy) of managers and reporting quality. I find that (a) accounting and finance departments where managers score high on the dark triad personality scale engage in more fraudulent accounting practices and (b) that traditional risk management mechanisms are only partially effective in mitigating this effect. Contrary to the positive association between dark triad personalities and firm performance found in the management literature, my results show the negative impact of employing managers with dark personality traits, and highlight the difficulty of controlling them using traditional risk management mechanisms.

Publication details: Working Paper.