UNIVERSITY OF CALIFORNIA,
IRVINE

Performance-expectation Ratcheting, Corporate Governance and Earnings Management

DISSERTATION

submitted in partial satisfaction of requirements

for the degree of

DOCTOR OF PHILOSOPHY
in Management

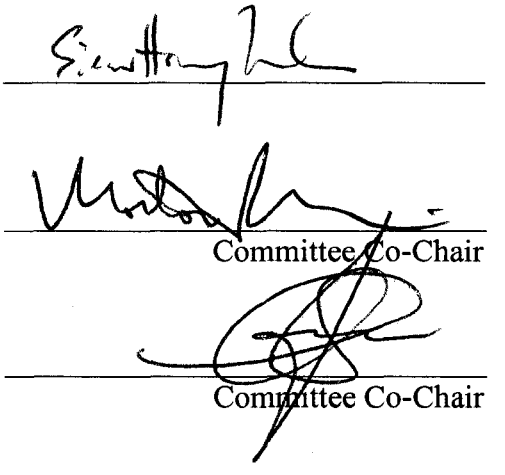
by

Feng Tian

Dissertation Committee:
Professor Mort Pincus, Co-Chair
Professor Christo Karuna, Co-Chair
Professor Siew Hong Teoh

2008

The dissertation of Feng Tian
is approved and is acceptable in quality and form for
publication on microfilm and in digital formats:



Committee Co-Chair

Committee Co-Chair

University of California, Irvine
2008

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

I would like to express the deepest appreciation to my committee co-chairs, Professor Mort Pincus and Professor Christo Karuna, who are continually supportive, enthusiastic and constructive in their guidance of my research, teaching and many areas of my life. Professor Mort Pincus has been a great role model for me and will continue to be a positive and confident voice in my heart as I make my way in academia. I am very grateful to Professor Christo Karuna who has given me painstaking instructions, great inspiration and enduring support for my research throughout my doctoral studies. His dedication to excellence has been and will always be an invaluable influence on me. Without the never-ending support and guidance of these professors, this dissertation would not have been possible.

I would like to thank my committee member, Professor Siew Hong Teoh, for her guidance, support and encouragement. Her passion for research is always a stimulus to me in my own research.

I would like to extend my appreciation to my candidacy committee members Professor Joanna Ho, Professor Charles Shi, and Professor Ivan Jeliazkov. Professor Ivan Jeliazkov has offered generous help to this dissertation during the past few years and his comments have been inspirational to this dissertation. Professor Charles Shi's insightful suggestions and advice have become an important part of this dissertation as well. Professor Joanna Ho has also unselfishly supported me throughout the whole period of my doctoral life at Irvine, and is indispensable to my success in pursuing the Ph.D. degree.

I would like to thank the Ph.D. program at The Paul Merage School of Business, particularly Professor Alladi Venkatesh and Noel Negrete, for their constant support and help.

Special thanks go to my fellow Ph.D. students and friends, Professor Zhu Liu, Daniela Balkanska, Tianjun Feng, James Cao, and Maryam El-Shall for providing comments and help to this dissertation. I also want to thank all of other Accounting Ph.D. students and my office mates for making the last few years of my doctoral studies both fruitful and enjoyable.

In addition, a whole-hearted thank you to Professor Andrew Metrick of Yale University who provided me with his precious data for this dissertation.

Last but very definitely not the least, I would like to thank my family and friends, who have always been ready to lend a helping hand. Their support has made all the difference in my education and my life.

CURRICULUM VITAE

Feng Tian

1997	B.E. in Management, Minor: Computer Science Nanjing University, Nanjing, China
2001	M.A. in Accounting Fudan University, Shanghai, China
2001-2008	Research & Teaching Assistant, Merage School of Business, University of California, Irvine
2006-2008	Instructor, Merage School of Business, University of California, Irvine
2008	Ph.D. in Management, Merage School of Business, University of California, Irvine

FIELD OF STUDY

Accounting

Abstract of the Dissertation

Performance-expectation Ratcheting, Corporate Governance
and Earnings Management

By Feng Tian

Doctor of Philosophy in Management

University of California, Irvine 2008

Professor Mort Pincus, Co-Chair

Professor Christo Karuna, Co-Chair

Asymmetric ratcheting means that a favorable performance variance (i.e., positive unexpected performance) in the prior year leads to a greater absolute change in the current year's performance expectation than does an unfavorable performance variance of the same magnitude. This study finds that asymmetric performance-expectation ratcheting is prevalent across publicly traded firms. It also finds that the extent of performance-expectation ratcheting is positively associated with the strength of external governance (i.e., shareholder rights). This paper also shows that such ratcheting affects earnings management decisions. Specifically, when a firm performs well in interim quarters (i.e., the first three fiscal quarters), managers facing intensive ratcheting attempt to decrease the reported earnings of the fourth quarter to build more "reserves" and rein in the increase of expectations for the future, compared to managers under little or no ratcheting. When underlying performance exceeds current performance expectations, managers under intensive ratcheting engage in income-decreasing accruals and real

activities manipulation (i.e., sales manipulation, changes in discretionary expenses including R&D and SG&A, and underproduction). In addition, when there is a temporary earnings increase, managers facing intensive ratcheting tend to use real activities to manage earnings downward. The results are robust after controlling for various factors.

Chapter 1
Introduction

This paper examines the prevalence of performance-expectation ratcheting (i.e., the tendency for performance expectations to increase after a period of good performance), and its associations with corporate governance and income-decreasing earnings management.

Anecdotal evidence suggests that performance expectations ratchet up with incorporation of past performance information (e.g., Weitzman 1980; Holthausen et al. 1995; Leone and Rock 2002; Indjejikian and Nanda 2002), but the direct evidence on the prevalence of performance-expectation ratcheting among publicly traded companies is limited. Whether performance expectations, which are used in implicit and explicit contracts as performance standards,[1] are being ratcheted up or not has significant implications for contracting designs, earnings management, and the operational efficiency of economies.[2] For instance, Leone and Rock (2002) document that high-performing divisional managers intentionally reduce their reported performance in a company that ratchets targets upward following superior past performance at the divisional level.

---

[1] Studies document that performance expectations have been widely used in bonus plans and managerial replacement decisions as performance standards (e.g., DeFond et al. 2002; Farrell and Whidbee 2003).

[2] See Weitzman, (1980); Laffont and Tirole (1988); Chow et al. (1991); Kanemoto and Macleod (1992); Laffond and Tirole, (1993); Indjejikian and Nanda (1999); Leone and Rock (2002); and Feltham et al. (2006) etc.

Furthermore, after a series of corporate scandals, including Enron and WorldCom, the importance of corporate governance was highlighted, and, thus, it is important to understand how corporate governance affects the way investors interpret reported performance. In this study, I ask how corporate governance is associated with performance-expectation ratcheting (i.e., the way investors update performance expectations in response to past reported performance). Previous studies suggest that performance-expectation ratcheting is an incentive mechanism, which benefits investors (ex post) by encouraging managers to create permanent earnings (Leone and Rock 2002) and by reducing management slack (e.g., Chow et al. 1991) and which also reduces excessive pay to managers (e.g., Laffont and Tirole 1993; Jeitschko et al. 2002); thus, one can expect that strong corporate governance will increase the intensity of ratcheting [3] while managers can be expected to prefer easy-to-achieve benchmarks in companies with weak corporate governance (e.g., Leone and Rock 2002; Chow et al. 1991; Jeitschko and Mirman 2002; Jeitschko et al. 2002). In addition, strong corporate governance itself can encourage managers to generate permanent earnings through different mechanisms (e.g., effective contracts focusing on long-term performance) that can benefit investors in the long-run. One can also predict that the extent of performance-expectation ratcheting is positively associated with the strength of corporate governance.

Ratcheting likely affects earnings management as well. In corporations, managers need to meet or beat expected performance in order to secure their current jobs (e.g.,

---

[3] By intensive ratcheting, I mean that a large proportion of a company's unexpected favorable performance is translated into the next period's performance expectation.

DeFond and Park 1997; Farrell and Whidbee 2003; Graham et al. 2005) and earn substantial bonuses (e.g., Matsunaga and Park 2001). That is, they have strong incentives to manipulate both reported performance and performance expectations across periods (e.g., Degeorge et al. 1999; Matsumoto 2002; Richardson et al. 2004; Cotter et al. 2006). Reported performance has a double-edged effect on managers' welfare. On the one hand, unexpected, positive reported performance may bring current monetary rewards to managers. On the other hand, managers will be held responsible for the higher performance expectations in subsequent periods if investors and boards of directors ratchet up their expectations in response to the positive, unexpected current reported performance. This will motivate managers to manipulate earnings downwards to manage future expectations. In other words, managers face a tradeoff between present rewards and potential future losses. If performance expectations significantly ratchet up, then managers will have incentives to intentionally lower current reported earnings to decrease the expected performance for the next period.[4]

A few studies explore the conjecture that managers may intentionally decrease reported earnings under performance-target ratcheting when underlying performance exceeds expected performance (or targets) (e.g., Holthausen et al. 1995; Degeorge et al. 1999; Murphy 2001; Leone and Rock 2002), but the results are inconclusive. On the one hand, Holthausen et al. (1995) examine this hypothesis (i.e., "Ratcheting Hypothesis"), but, as discussed below, they do not find evidence to support the hypothesis. On the other hand, in the company where top management ratchets up expected performance of

---

[4] I define performance-expectation ratcheting (or the ratchet effect) as the tendency for performance expectations to increase after a period of good performance (Milgrom and Roberts 1992).

divisional managers, Leone and Rock (2002) document that divisional managers make income-decreasing discretionary accruals in response to temporary earnings increases. However, it is difficult to generalize this finding to other companies and build a causal link between the observed income-decreasing discretionary accruals and ratcheting because every division in the one company Leone and Rock study faces the same level of ratcheting (i.e., their study does not offer a comparison group). The earnings management part of my study differs from previous research in the following two important ways.

First, I examine how the variation in performance-expectation ratcheting leads to different earnings management behavior by classifying my sample firms into the firms with intensive performance-expectation ratcheting and firms with weak performance-expectation ratcheting, while related studies (e.g., Degeorge et al. 1999; Holthausen et al. 1995) assume that the ratchet effect is the same across companies. This assumption weakens the power of the tests and makes it difficult to attribute observed earnings management to the ratchet effect. For example, Degeorge et al. (1999) show that if companies' performance targets are the previous period's level of performance, then the performance targets will be ratcheted up, which motivate managers to manipulate earnings downwards; thus, the discontinuity of the earnings distribution around previous earnings is likely to be associated with such a ratchet effect. However, such a discontinuity can be associated with *other* earnings management motivations (e.g., managing earnings up to just meet benchmarks), and hence they do not directly test the ratchet hypothesis but rather the existence of earnings management.

Second, this study not only examines accruals earnings management, but also real earnings management and fourth-quarter earnings management (i.e., the pattern of quarterly earnings),[5] while previous studies on ratcheting focus on discretionary accruals (i.e., accruals earnings management). Examining a spectrum of managers' choices to manipulate earnings is important since prior research suggests that managers use multiple methods to manipulate earnings (e.g., Graham et al., 2005). Hence, investigating only accruals management may under-estimate the extent of earnings management (e.g., Murphy 2001), given that recent survey evidence (e.g., Bruns and Merchant 1990; Graham et al. 2005) suggests that managers are more willing to manipulate earnings through real activities than by managing accruals.

In this study, I empirically examine how future performance expectations, proxied by analyst earnings forecasts, are affected by reported performance, and find that among publicly traded companies performance expectation is ratcheted up asymmetrically in response to reported performance. That is, a favorable performance variance (i.e., positive unexpected performance) in the prior year leads to a greater absolute change in the current year's performance expectation than does an unfavorable performance variance of the same magnitude.

I further investigate the association between corporate governance and performance-expectation ratcheting, and find that external governance[6] (i.e., shareholder

---

[5] In this study, I focus on annual performance instead of quarterly performance since prior studies (e.g., Oyer 1998) suggest that most managerial incentive plans and turnover decisions are likely based on annual performance.

[6] Studies on corporate governance often classify governance mechanisms into two broad categories – internal and external governance mechanisms. Board structure and ownership concentration are often

rights) is associated with the intensity of performance-expectation ratcheting. However, there is no evidence to support any association between internal governance and performance-expectation ratcheting.

More important, I find a positive relation between the extent of ratcheting and the extent of income-decreasing earnings management. Specifically, I classify my sample firms into two groups based on how the next period's expectation historically changes in response to unexpected performance for each firm: 1) firms under intensive ratcheting, in which a large proportion of these companies' unexpected favorable performance is reflected in the next period's performance expectation; and 2) firms under little or no ratcheting; then I examine the association between ratcheting and earnings management. My results show that when a firm performs well in interim quarters (the first three fiscal quarters), managers under intensive ratcheting engage in more income-decreasing earnings management in the fourth quarter, with the intent to rein in the increase of future expectations, than managers under little or no ratcheting. When there is good performance that exceeds expectations, managers under intensive ratcheting intentionally under-report current earnings through accruals and real activities management.[7] When there is a temporary earnings increase, managers under intensive ratcheting tend to engage in real activities manipulation, and there is modest evidence that managers also manipulate accruals in response to performance-expectation ratcheting. The main results are similar after I conduct a number of additional tests, such as controlling for a wide

---

regarded as internal governance, and take-over provisions are seen as external governance (e.g., Cremers and Nair 2005).

[7] See footnote 3.

range of firm and year characteristics, the "upper-bound" of bonus plans, and costs of capital. Out-of-sample tests further verify that the main findings are robust.

This paper makes a contribution to studies on corporate governance. To my best knowledge, this is the first study to explore the association between the strength of corporate governance and performance-expectation ratcheting. The investigation into such an association can help us understand how corporate governance affects the way investors anticipate future performance in response to past reported performance, thereby enhancing our ability to predict firm value.

This study also extends the literature on ratcheting and earnings management. Holthausen et al. (1995) examine whether performance-expectation ratcheting causes managers to lower earnings by using discretionary accruals, but fail to find a relation between ratcheting and earnings management. As noted above, they assume that the degree of ratcheting is the same for all companies, while it is likely that there is considerable variation. In contrast, I classify companies into two sub-groups according to the extent of performance-expectation ratcheting and find that managers facing intensive ratcheting tend to lower reported earnings through accruals and real earnings management. Leone and Rock (2002) examine accruals earnings management at the divisional level in one company. I extend their study not only to the top management level across a large number of companies, but also to both accruals and real earnings management.

Finally, my research contributes to the earnings smoothing literature. I propose that performance-expectation ratcheting can explain earnings smoothing, and provide supporting evidence. Earnings smoothing is a common phenomenon in corporate

financial practice (Graham et al. 2005), but why managers smooth earnings is not well understood (e.g., Goel and Thakor 2003; Fudenberg and Tirole 1995). My study shows that managers facing performance-expectation ratcheting tend to engage in income-downward earnings management when current performance is good, which is consistent with observed earnings smoothing. That is, my results are consistent with income smoothing as a form of earnings management. Thus, my paper not only provides an economic explanation for earnings smoothing but also identifies conditions when managers tend to smooth earnings.

The rest of this dissertation is organized as follows. In Chapter 2, I investigate the prevalence of performance-expectation ratcheting and its association with corporate governance. Chapter 3 explores the relation between ratcheting and earnings management. Chapter 4 concludes the whole paper.

Chapter 2
Performance Expectation Ratcheting and Corporate Governance

This chapter first investigates how performance expectations are updated in response to past performance in comparison to the corresponding expectation across companies, and then explores whether the strength of corporate governance is related to such an updating process.

2.1 Literature Review and Hypotheses

2.1.1 Performance Benchmark and Expectation Ratcheting

Anecdotal observations suggest that performance benchmarks ratchet up by incorporating past performance information. Holthausen et al. (1995) describe a case where the H.J. Heinz company intentionally ratchets up its performance benchmarks. That is, the company sets subsequent performance benchmarks at the greater of 115% of the prior year actual or 115% of the prior year's performance benchmarks. Leone and Rock (2002) document that the headquarters of an international company ratchets up divisional managers' benchmarks. Furthermore, Indjejikian and Nanda (2002) use target bonus data to infer that performance benchmarks ratchet up across different companies.

However, it is theoretically controversial whether or not explicitly-used performance benchmarks ratchet up. One stream of studies show that performance benchmark ratcheting is ex ante inefficient because an agent (e.g., a manager) in a principal-agent setting, where there is information asymmetry about the underlying

productivity of the agent, will reduce his/her effort in the firm in order to avoid being held to demanding benchmarks in the future (e.g., Laffont and Tirole 1988, 1993; Indjejikian and Nanda 1999). Therefore, if the principal can credibly commit *not* to use the past performance information of the agent, both parties can benefit because managers have no incentives to distort reported outcomes by destroying firm value if the past performance information will not affect future performance benchmarks; thus, no ratcheting should occur. Even in situations where the principal is unable to commit credibly, performance benchmark ratcheting may not be observed since the agent can interfere with the performance reporting and distort the information transfer (e.g., Laffont and Tirole 1993).

However, other studies suggest that performance benchmark ratcheting can benefit the principal or companies by reducing management slack and encouraging the creation of permanent earnings (e.g., Chow et al. 1991; Leone and Rock 2002). Since pay increases with reported performance relative to performance benchmarks, managers have strong incentives to build managerial slack into their performance benchmarks (i.e., lower performance benchmarks) by manipulating the communication to investors about the operations of companies. If investors establish performance benchmarks based on past performance (i.e., ratchet up performance benchmarks), the effect of building slack into performance targets will be mitigated. Furthermore, when performance benchmarks ratchet up, the excessive pay made to the agent or managers can be reduced (Jeitschko and Mirman 2002; Jeitschko et al. 2002; Leone and Rock 2002) because the amount of compensation paid to managers depends on the difference between reported performance and performance benchmarks.

Performance benchmarks can be either explicit or implicit. While explicit performance benchmarks are clearly written in detailed contracts (e.g., bonus plans), implicit performance benchmarks are used by the principal in decisions and are undefined by contracts (e.g., managerial replacement decisions and discretional bonuses). In the interaction between investors and CEOs, the performance benchmarks are likely implicit since many of the important decisions that reward or penalize CEOs are normally in-contractible. For example, managerial replacement decisions are not bounded by employment contracts (e.g., Arya et al. 1998), and implicit performance benchmarks (performance expectation at the beginning of a period) are used by boards of directors and investors (e.g., Farrell and Whidbee 2003). One can expect that implicit performance benchmarks are more likely to ratchet up because investors have limited ability to make a binding commitment regarding these performance benchmarks.

In the relation between investors and managers, studies document three possible types of performance benchmarks: previous year's performance, zero earnings, or performance expectation (e.g., Degeorge et al. 1999; Phillips et al. 2003). While zero earnings are fixed and irrelevant to ratcheting, using a previous year's performance automatically ratchets up the benchmarks used. The remaining interesting question is whether performance expectation ratchets up as well.

In the game between investors and managers, reported performance is generated from the accounting system. When actual performance is reported, investors compare it to their current expectation and update their future expectations. If positive unexpected performance is disclosed, investors will anticipate the persistence of the positive unexpected performance since the financial reporting system is designed to report

persistent earnings (e.g., Dechow and Schrand 2004). As a result, investors largely increase their subsequent performance expectation. However, if investors observe a negative unexpected performance, they likely will incorporate a smaller portion of the unexpected performance to revise their next period's performance expectation downward. The reason for this is that negative unexpected earnings are less persistent than positive unexpected earnings due to accounting conservatism or the asymmetric timeliness of earnings recognition (e.g., Basu 1997; Watts 2003a, 2003b).[8] For instance, if there is a perceived permanent positive shock on the company's operation (e.g., output prices permanently increase), then the company will recognize the gain persistently over a span of years. However, if there is a perceived permanent negative shock to the company's business (e.g., output prices permanently decrease), then the company is more likely to recognize anticipated losses immediately (e.g., the impairment of goodwill or other assets or restructuring costs). Such a negative shock is unlikely to be persistent in earnings over the next period because most negative expected cash flows are recognized when the shock occurs. Hence, performance-expectation ratcheting is likely asymmetric.

Furthermore, Leone and Rock (2002) argue that investors can asymmetrically ratchet up their expectations and motivate managers to produce permanent earnings. The logic is that managers can earn current bonuses by creating temporary earnings increases (e.g., cutting down R&D expenditure), but will suffer from repeatedly failing to meet or beat future increased performance benchmarks due to asymmetric ratcheting; this is

---

[8] Other studies label the asymmetric timeliness of earnings recognition as "conditional conservatism," "news dependent conservatism," or "ex post conservatism" in contrast to "unconditional conservatism" (e.g., Ryan 2006).

because performance benchmarks increase more quickly and significantly than performance benchmarks decrease under asymmetric ratcheting.[9] Therefore, asymmetric ratcheting is an incentive mechanism to encourage managers to create permanent earnings.

In light of the above discussions, I anticipate that positive unexpected earnings will result in increases in the next period's expected performance that are greater than the decreases associated with negative unexpected earnings of the same magnitude.[10] More specifically, I hypothesize:

H1a: Ceteris paribus, performance-expectation ratcheting occurs with respect to reported performance.

H1b: Ceteris paribus, performance-expectation ratcheting is asymmetric. Specifically, a larger proportion of positive unexpected performance will be translated into the next period's performance expectation than the same magnitude of negative unexpected performance.

2.1.2 Corporate Governance and Ratcheting

I expect that performance-expectation ratcheting is related to corporate governance for the following two reasons. First, since previous studies suggest that performance-expectation ratcheting is an incentive mechanism that benefits investors (ex post) but reduces excessive pay to managers, one can expect that strong corporate

---

[9] A detailed discussion will be provided in Chapter 3 with examples from Exhibit 1.

[10] A similar prediction can also be made at the divisional management level (e.g., Leone and Rock, 2002).

governance will increase the intensity of ratcheting while managers can successfully obtain easy-to-achieve benchmarks in companies with weak corporate governance (e.g., Leone and Rock 2002; Chow et al. 1991; Jeitschko and Mirman 2002; Jeitschko et al. 2002). Second, strong corporate governance itself can encourage managers to generate permanent earnings that can benefit investors in the long-run. Studies show that strong corporate governance can improve the informativeness and quality of earnings, which increase earnings persistence (e.g., Fan and Wong 2002; Dechow and Dichev 2002; Bowen et al. 2008). If earnings innovations are likely to be permanent under strong corporate governance, I anticipate that a larger portion of positive earnings innovation will be translated into a performance expectation increase in the next period in well-governed firms.

Chow et al. (1991) assert that managers tend to build slack into their performance targets. Compared to middle managers, CEOs can significantly influence both internally-used benchmarks and externally-implied expectations. Thus, in the absence of a monitoring and disciplinary mechanism, CEOs will likely loosen their performance benchmarks to earn high compensation and entrench themselves. Therefore, in terms of performance-expectation ratcheting, one can expect that managers under weak corporate governance will reduce a portion of positive unexpected earnings, which are then reflected in the next period's expectation.

Managers can increase reported performance by creating temporary gains (e.g., one time sales of assets) and/or permanent earnings increases (e.g., productivity improvement) (e.g., Leone and Rock 2002). In terms of value-creation, investors prefer permanent earnings, but managers can benefit in the short-term from temporary earnings

increases since their annual bonus likely increases with these temporary gains. In a firm with strong corporate governance, managers are encouraged to generate permanent earnings by many different incentive mechanisms, including performance-benchmark ratcheting. Eventually, if strong corporate governance enhances investors' wealth, we should observe that performance-benchmark ratcheting is more intensive in well-governed firms. That is, a larger portion of positive, unexpected earnings will be translated into the subsequent period's expectation-increases.

Given the discussion above, I hypothesize:

H2: Performance-expectation ratcheting is positively associated with the strength of corporate governance.

I do not predict an association between the strength of corporate governance and the asymmetry of ratcheting. If asymmetric ratcheting is designed to discipline managers and encourage them to create permanent earnings, then I expect that a smaller portion of the negative, unexpected earnings will be reflected in the next period's performance expectation as a benchmark because the asymmetry of ratcheting can heavily penalize managers' myopic behavior (Leone and Rock 2002).[11] On the other hand, if the existence of asymmetric ratcheting is purely due to the characteristics of accounting earnings (i.e., conditional accounting conservatism), I may not observe the association between corporate governance and asymmetry in ratcheting unless there is a relation between corporate governance and accounting conservatism. In fact, current studies provide mixed evidence on the relation between corporate governance and accounting conservatism (e.g.,

[11] The reason is that temporary earnings will increase future performance benchmarks that managers are unable to meet over several periods (see Exhibit 1 for the details).

Ahmed and Duellman 2007; Beekes et al. 2004). Ahmed and Duellman (2007) find that board independence is associated with the extent of accounting conservatism, but other dimensions of governance such as CEO duality and board size have no relation to corporate governance.

2.2 Research Design

2.2.1 Measuring Performance Expectation

I first examine whether performance expectations are asymmetrically ratcheted up in response to reported performance. I use analysts' earnings forecasts nine-months prior to the end of the fiscal year to measure expected performance.[12] Although Richardson et al. (2004) and others suggest that annual analyst forecasts of earnings tend to be optimistic or biased upwards early in a fiscal year, studies show that analyst forecasts are more accurate (e.g., O'Brien 1988) and a better proxy for investors' expectations than time-series forecasts (e.g., Brown et al. 1987). In addition, LaPorta (1996) suggests that the market does not recognize the systematic errors in analysts' forecasts, indicating that investors are as optimistic as analysts. If investors share the same optimism as financial analysts, analyst optimism should not affect my analysis because the only concern here is

[12] As previously noted, I investigate annual performance because managers generally are evaluated on an annual basis (Oyer 1998).

whether analyst forecasts reflect investor expectations.[13] Furthermore, I show in Appendix A that analyst forecast biases do not affect my statistical analyses.

Several studies also argue that analysts' earnings forecasts are used by investors to construct performance benchmarks (e.g., Farrell & Whidbee 2003; Matsunaga and Park 2001; Puffer and Weintrop 1991). In practice, managers prepare budgets for the upcoming year for approval by the board of directors. The board then holds top management responsible for meeting the overall budget, and budgeted performance standards are likely used in incentive plans. DeFond et al. (2002) empirically show that consensus analysts' earnings forecasts are likely to capture the information used by the investors to construct performance standards. Jensen (2003) suggests managers use analyst forecasts as references to prepare the next year's budgets in a typical company's budgeting process. This suggests that to least some extent, a company's CEO and CFO establish the targets by working backwards from analysts' forecasts at the beginning of the budgeting process.

2.2.2 Empirical Models

As shown in previous studies (e.g., Weitzman 1980; Leone and Rock 2002; Lee et al. 2007), investigating the question about the prevalence of performance-expectation ratcheting is to ask whether past performance is relevant to the update of performance expectation, and thus to explore the impact of a previous performance on performance expectation. Following previous studies on the ratchet effect (e.g., Weitzman 1980;

---

[13] In fact, Graham et al.'s (2005) survey shows that companies' internal earnings targets often exceed external analyst consensus targets.

Leone and Rock 2002; Lee et al. 2007), I develop the empirical model to test whether performance expectations are ratcheted up overall across publicly traded companies:

$$\Delta S_{i,t+1} = \alpha_i + \alpha_t + \beta_0 D_{it} + \beta_1 UE_{it} + \beta_2 D_{it} \times UE_{it} + \gamma_1 Asset\_Growth_{i,t+1} + \gamma_2 Sales\_Growth_{i,t+1} + \gamma_3 MB_{i,t} + \varepsilon_{i,t} \quad \text{.....(2-1)}$$

where $\Delta S_{t+1} = S_{t+1} - S_t$;

S_t = expected performance for period t, which is the median consensus analyst forecast of earnings per share (EPS) from I/B/E/S nine-months prior to the end of the fiscal year deflated by the beginning assets per share;

S_{t+1} = expected performance for period t+1, which is the median consensus analyst forecast of EPS nine months prior to the end of the fiscal year deflated by the beginning assets per share;

UE_{it} = actual EPS (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share;

D_{it} = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$;

Asset_Growth = expected asset growth [(Compustat #6_{t+1} - Compustat #6_t)/ Compustat #6_t];

Sales_Growth = expected sales growth [(Compustat #12_{t+1} - Compustat #12_t)/ Compustat #12_t]; and,

MB = market-to-book ratio [(Compustat #199 × Compustat #25)/Compustat #60].

β_1 is the adjustment coefficient for favorable variances in performance relative to expected performance (i.e., positive, unexpected performance), and β_2 is the incremental coefficient for unfavorable variances in performance. The sum of the two coefficients ($\beta_1 + \beta_2$) is the adjustment coefficient for unfavorable variances (i.e., negative, unexpected performance). To control for unobservable firm characteristics and economic changes, I include firm-fixed effects and year-fixed effects in the model. In addition, I follow Leone and Rock (2002) to control for asset growth (Asset_Growth), and sales

growth (Sales_Growth), because an unexpected business expansion may affect both reported performance and performance expectations for the next period. I also include sales growth and market-to-book ratio (MB) to control for unconditional conservatism (e.g., Leone and Rock 2002; Roychowdhury and Watts 2007).[14] I use the method of restricted maximum likelihood (REML) to estimate empirical models throughout the whole study.

2.2.3 Corporate Governance

The strength of corporate governance is measured multi-dimensionally in prior research (e.g., Gillan 2006). Following these studies, I measure corporate governance on three dimensions below.

First, I examine the association between performance-expectation ratcheting and corporate governance from the perspective of shareholder rights. In firms with weak shareholder rights, managers have more opportunities to set their own self-serving performance benchmarks, causing higher agency costs (Gompers et al. 2003). Following Gompers et al. (2003), I use the G-Index as a proxy for shareholder rights. Gompers et al. (2003) choose the G-Index based on corporate-governance provisions for individual firms in the IRRC (Investor Responsibility Research Center) database to measure the balance of power between shareholders and managers. For every firm, Gompers et al. (2003)

---

[14] Beaver and Ryan (2005) suggest that accounting conservatism can be classified into unconditional conservatism and conditional conservatism. Unconditional conservatism is independent of good or bad news of companies; book value of net assets is understated due to predetermined aspects of the accounting process. A typical example is R&D expenditure, which is expensed immediately when incurred. Conditional conservatism means that book values of net assets are written down when bad news occurs, but not written up under favorable circumstances. The reason I control for unconditional conservatism is that Beaver and Ryan argue that unconditional conservatism preempts conditional conservatism.

construct a G-Index by adding one point for every provision that restricts shareholder rights and increases managerial power. The G-Index ranges from 1 to 24, and a lower value means greater shareholder power. To ensure the robustness of the index, I create a different measure of takeover defense, the alternative takeover index (ATI), by following Cremer and Nair (2005). This measure is constructed by considering the existence of classified (staggered) boards, of blank check preferred stock (poison pill), and of restrictions on shareholders in calling special meetings or acting through written consent. The ATI has a value between 0 and 3, and a high ATI means low shareholder power.

Second, I measure the strength of corporate governance by investigating the ownership of companies. Institutional investors are believed to be a key component of corporate governance – monitoring and disciplining managers through explicit actions or "voting with their feet" (e.g., Gillan and Starks 2003). In this paper, I focus on large institutional investors with more than 5% of outstanding shares. I anticipate that institutional investors with a large stake in a company have strong incentive and ability to monitor and influence the company's operation. When a company has a highly diffuse ownership structure where each of the shareholders holds a small portion of the shares outstanding, a free rider problem arises, making *small* investors unlikely to monitor managers because each of the investors would bear the entire monitoring costs while *all* investors would share the benefits (Grossman and Hart 1980). When institutional investors have a large stake in the company, their incentive to monitor and discipline managers becomes strong because it is difficult for institutional blockholders to dump their investments without significantly affecting stock prices, and because these investors can monitor corporate executives in a cost-effective way. Focusing only on institutional

investors may ignore other types of blockholders (e.g., individual blockholders). Therefore, I obtain the block holding data collected by Dlugosz et al. (2006) and check the robustness of the results by examining the association between all blockholders (outside blockholders) and ratcheting.

Third, I measure the strength of corporate governance from the viewpoint of board monitoring. Previous studies (e.g., Weisbach 1988) document that boards of directors play an important role in disciplining CEOs, and the board is "the shareholders' first line of defense against incompetent management" (Weisbach 1988). Prior research commonly uses board independence, board size, and CEO duality as proxies for the effectiveness of boards of directors (e.g., Yermack 1996; Weisbach 1988; Gillan et al. 2003). The general consensus in both the press and the academic literature is that independent boards of directors result in more effective corporate governance. The independence of boards is associated with the ability of the board to replace incompetent CEOs (Weisbach 1988) and construct compensation packages that more closely align managers with the welfare of shareholders (Ryan and Wiggins 2004). Yermack (1996) shows that small boards of directors are more effective and are associated with higher firm value. In addition, the separation of the CEO from the chairman of the board of directors is believed to be in shareholders' interests (e.g., Jensen 1993).

Therefore, the empirical models to test H2 are as follows:

$$\begin{aligned}\Delta S_{i,t} = {} & \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 G\_Index(ATI) \times UE + \\ & \beta_4 G\_Index(ATI) \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 G\_Index(ATI) \\ & + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t}\end{aligned} \qquad \text{.....(2-2)}$$

$$\Delta S_{i,t} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 BLOCK \times UE + \beta_4 BLOCK \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 BLOCK + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{.....(2-3)}$$

$$\Delta S_{i,t} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 BOARD\_MEASURE \times UE + \beta_4 BOARD\_MEASURE \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 BOARD\_MEASURE + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{.....(2-4)}$$

where[15]:

G_Index = corporate governance index created by Gompers et al. (2003) using the IRRC data;

ATI = alternative takeover vulnerability index, which incorporates three takeover provisions (blank check preferred stock, staggered boards, and restrictions on calling special meetings or acting by written consent);

BLOCK = the fraction of outstanding shares owned by institutional blockholders (Spectrum data); a blockholder is defined as a shareholder who holds more than 5 percent of outstanding shares. Two other alternative blockholder measures are alternatively used:

ALL_BLOCK = the percentage of outstanding shares held by all blockholders for a given firm-year (data are retrieved from Dlugosz et al. 2006);

OUT_BLOCK = the percentage of outstanding shares held by all outside blockholders (data are retrieved from Dlugosz et al. 2006);

BOARD_MEASURE is one of the following:

BOARD_SIZE = the number of members of the board of directors as of the annual meeting date during each fiscal year (from the IRRC);

SEPARATE_CHAIR = 1, if the chief executive officer (CEO) and chairperson of the board (COB) positions are held by different people; 0, otherwise (from the IRRC);

BOARD_INDEP=1, if the fraction of directors who are classified as independent is bigger than 50%; 0 otherwise (from the IRRC).

---

[15] All the variable definitions can be found in Appendix C.

Other variables are defined previously on Page 18.

I anticipate that a higher percentage of any positive unexpected performance will be adjusted into future performance expectations when the G_Index (or ATI) is lower (i.e., when shareholders have more power) because investors can quickly replace directors and discipline managers with less restrictions. Therefore, I expect β_3 to be negative for model (2-2). In model (2-3), the proxy for strong corporate governance is the large stake of institutional blockholders. Therefore, I expect β_3 to be positive. When I explore the association between corporate governance and ratcheting from the perspective of board structure using model (2-4), the smaller board (BOARD_SIZE), the separation of CEO and COB, and the independence of the board both indicate effective corporate control, and thus I expect β_3 to be negative when BOARD_SIZE is used, and positive otherwise.

2.3 Sample Selection and Descriptive Statistics

2.3.1 Sample

Table 1 summarizes my sample selection. The sample is chosen from the intersection of firms contained in the Computstat database, the I/B/E/S database, the Thomson Financial database, and the IRRC database. Since the IRRC database begins in 1990, and since I want to avoid the impact of corporate governance reforms (e.g., the Sarbanes-Oxley Act),[16] I examine a sample covering the 13-year period from 1990 to

[16] Although the Sarbanes-Oxley Act was enacted in July 2002, I do not believe that it will affect most companies' fiscal year 2002's results because many of its key provisions (e.g., Section 302 and 404) were

2002. To increase the reliability of the proxy for performance expectations, I choose the analysts' consensus forecasts of firms that are followed by at least 3 analysts. To mitigate the influence of outliers, I exclude observations having UE below the 1st percentile or above the 99th percentile. In addition, to separate the sample into two sub-groups (ratcheting firms and non-ratcheting firms) for the earnings management analysis in Chapter 3 and ensure that each firm has sufficient time series for reliable estimations, I limit the sample to the firms with at least a six-year history on I/B/E/S. This restriction may induce a survivorship bias in my analyses. To tackle the rounding-to-the-nearest-penny problem in the I/B/E/S-adjusted data raised by Payne and Thomas (2003), I choose unadjusted I/B/E/S data and adjust them back using historical adjustment factors. The final sample consists of 9,415 firm-year observations. In the empirical tests related to corporate governance variables, the sample size will be further reduced due to the availability of certain variables. In addition, I winsorize all continuous control variables below the 1st percentile or above the 99th percentile. Results are qualitatively the same without winsorization.

2.3.2 Summary Statistics

Table 2 reports summary statistics for the sample. The mean and median sales are $5.09 billion and $1.65 billion, respectively. Due to the coverage of the IRRC dataset and other selection criteria, these companies are large, but comparable to the sample used by Indjejikian and Nanda (2002). The corporate governance statistics, such as G_Index,

---

implemented after 2002. To check robustness of my analysis, I drop the observations in 2002 and find similar results.

BOARD_SIZE and percentage of shares held by block holders (ALL_BLOCK), are also similar to prior studies (e.g., Dlugosz et al. 2006).

Panel B, Table 2 shows that G_Index is highly correlated with ATI (0.660), which supports that ATI can be an alternative proxy for the power of shareholders. The correlation between the growth of assets (Asset_Growth) and the growth of sales (Sales_Growth) is also high (0.604). In addition, market-to-book ratio (MB) positively correlates with Asset_Growth and Sales_Growth. The correlations among MB, Sales_Growth, and Assets_Growth indicate that these variables capture similar underlying characteristics of companies.

2.4 Empirical Results

2.4.1 Prevalence of Ratcheting

Table 3 reports tests of H1 using regressions with firm and year fixed effects. The coefficient estimate on UE, $\hat{\beta}_1$, is significantly positive (1.294 in Column (2)) at the 1% level while the coefficient on negative, unexpected performance, β_2, is significantly negative (-0.415) at the 1% level. These results suggest that when the current year's actual performance exceeds the performance benchmark, approximately 129.4% of that unexpected component is reflected in the performance expectation for the next year. In contrast, if the current year's actual performance is less than the performance benchmark, only 87.9% ($\beta_1 + \beta_2$ or 1.294-0.415) of that performance variance is reflected in the next year's performance expectation decrease. The dummy estimate is insignificant, suggesting that there is no additional adjustment for meeting the performance expectation. Other specifications such as OLS regressions without firm and year fixed effects and

regressions without scaling performances and expectations were considered with similar results to those reported in Table 3.

Overall, the results in Table 3 support Hypothesis 1 by showing that performance-expectation ratcheting largely exists across firms and that the ratcheting pattern is asymmetric.

2.4.2 Corporate Governance and Ratcheting

Table 4 presents the estimates on the association between shareholder rights and ratcheting. The results from Column (1) show that the coefficient on the interaction term, G_Index×UE, is significantly negative (-.089, $p<0.01$), as predicted. This suggests, in a firm with strong shareholder rights, a greater percentage of positive, unexpected performance will be reflected in the formation of new expectations for the next period. Specifically, an additional 35.6 %[17] of current positive, unexpected performance will be adjusted into the next year's performance expectation if a firm reduces its G-index from the third quartile to the first quartile, according to estimates in Column (1). In addition, based on estimates in Column (2), the combination of $\beta_3 + \beta_4$ is 0.0054 and insignificant, indicating that the effect of G-index on the asymmetry of ratcheting is minimal.[18] Column (3) and (4) use ATI as an alternative measure for shareholder rights, and present similar results.

---

[17] 35.6% is estimated as the following: 0.089(the coefficient estimate of β_3) × [11(the value of G-index at the third quartile) – 7(the value of G-index at the first quartile)].

[18] However, if we consider the ratio of the positive unexpected earnings portion that is reflected in the next period's performance expectation relative to the corresponding negative unexpected earnings portion, performance-expectation ratcheting in companies with strong shareholder rights is more asymmetric.

Table 5 reports the estimates on the association between ownership concentration and ratcheting. Panel A, Table 5 shows insignificant estimates on the research interest variable (BLOCK×UE). Thus, there is no evidence to support the relation between large institutional holdings and ratcheting. In Panel B, Table 4, I measure ownership concentration by using either the percentage of shares held by all blockholders or the percentage of shares held by outside blockholders. The sample period of the block holding data is from 1996 to 2001 so that the sample size for the regressions is reduced to approximately 4,000, which may decrease the power of the tests. The results show that the coefficient estimates on the variables of research interest (ALL_BLOCK×UE, OUT_BLOCK×UE) continue to be insignificant although the signs of estimates are consistent with my predictions. Overall, the empirical results do not support the hypothesis that ownership concentration is associated with ratcheting.

Table 6 reports the association between board structure and ratcheting. Panel A indicates no relation between the duality of CEO and ratcheting. The results in Panel B contradict my prediction on the relation between board independence and ratcheting although the coefficient on BOARD_INDEP×UE becomes weaker when I control for sales growth and market-to-book ratio. This finding is consistent with several studies arguing that insiders on boards may be better monitors than outside independent directors due to the information advantage the insiders have and the stakes they hold (Kumar and Sivaramakrishnan 2008; Karuna 2008). Panel C reports the association between board size and ratcheting. Consistent with the prediction, Column (1) shows that small board size is negatively associated with intense ratcheting since the coefficient estimate on BOARD_SIZE is significantly negative. However, when I include Sales_Growth and MB

as control variables, that association disappears. The results from Panel C are consistent with recent research challenging the concept that small board size absolutely means good (or strong) corporate governance (e.g., Coles et al. 2008).[19]

In Table 7, I include all three dimensions of corporate governance measures in one regression.[20] Although the sample size is significantly reduced, similar to Table 4, the results show that the coefficient on G_Index×UE is significantly negative at the 1% level, suggesting that the strength of shareholder rights is positively associated with the intensity of ratcheting. The coefficients on other corporate governance measures that interact with UE are insignificant, consistent with results in Table 5 and 6.

2.5 Summary

Overall, I find that performance-expectation ratcheting is prevalent and asymmetric. There is modest evidence that the extent of performance-expectation ratcheting is associated with the strength of corporate governance. From the perspective of external governance mechanisms, I find that strong shareholder rights are positively associated with performance-expectation ratcheting. However, there is no evidence to support the association between internal governance and performance-expectation ratcheting. The evidence on the association between external corporate governance and ratcheting sheds light on the recent debates about how external corporate governance is

---

[19] Coles et al. (2008) find that the relation between firm value (Tobin's Q) and board size is U-shaped.

[20] For brevity, I suppress all other variables except the interaction terms with corporate governance measures in Table 7.

associated with equity pricing (e.g., Gompers et al. 2003; Cremers and Nair 2005; Core et al. 2006). On the one hand, studies (e.g., Gompers et al. 2003; Cremers and Nair 2005) find that the strength of external corporate governance measured by the G-Index is associated with equity returns. The explanation is that investors do not understand the implications of external corporate governance on future cash flows. On the other hand, by testing the relation between performance expectations and external governance, Core et al. (2006) suggest that investors understand the implications of governance for future operations, and conclude that there is no causal relation between external corporate governance and equity pricing. This chapter shows that dynamic expectation changes (i.e., ratcheting) are related to the strength of external governance, implying that the puzzle about the association between external corporate governance and stock returns is worth investigating further from the perspective of performance-expectation ratcheting. The findings about the association between corporate governance and performance-expectation ratcheting are consistent with Jensen (1993)'s skepticism about internal governance. Jensen (1993) believes that the market for corporate control should be the main form of governance.

Chapter 3

Performance Expectation Ratcheting and Earnings Management

The purpose of this chapter is to investigate the relation between performance-expectation ratcheting and earnings management. In Section 3.1, I develop my research hypotheses. Section 3.2 discusses my research design. Section 3.3 describes the research sample selection and provides descriptive statistics of the sample. Section 3.4 presents my empirical results. Section 3.5 summarizes the chapter.

3.1 Hypothesis Development

As discussed in Chapter 2, performance expectations are implicitly or explicitly incorporated in managerial incentive systems (e.g., bonus plans and managerial replacement decisions). Specifically, when a company's underlying performance is superior (i.e., largely exceeds expected performance) during the current period, subsequent performance expectations will increase due to performance-expectation ratcheting.[21] Although it benefits current investors, the increased expected performance

---

[21] In this paper, I focus on the case in which the underlying performance is superior (i.e., exceeds current performance expectations) because a relatively clear prediction can be made in terms of earnings management decisions in response to ratcheting. For example, when the underlying economic performance is below current performance expectations, the ratchet effect can lead either to income-increasing or income-decreasing earnings management. It is difficult to differentiate the ratcheting explanation from other alternative explanations. For instance, if performance-expectation ratcheting is asymmetric and a company's underlying economic performance is below the current expected performance, managers may make income-decreasing earnings management decisions to lower performance expectations during the next period. However, decreasing current reported performance can increase the risk of being fired, and a "big bath" explanation without ratcheting can equally explain income-decreasing earnings management. In addition, it is also optimal for managers to make income-increasing decisions to *just* reach the current performance expectation under ratcheting.

may impair managers' long-term welfare in several ways.[22] First, higher expected performance is likely to be incorporated in performance standards in CEOs' bonus contracts (e.g., DeFond et al. 2002), which can lead to more demanding performance standards in the future. As a consequence, managers will be less likely to reach the performance target and thus receive lower bonuses in the subsequent periods, especially given the documented evidence that failing to meet or beat performance expectations is associated with a large decline of bonus rewards (e.g., Matsunaga and Park 2001).[23] Second, increased expected performance likely reduces the possibility that CEOs will meet or beat these expectations. When boards of directors incorporate demanding performance expectation into their managerial replacement decisions (e.g., Farrell and Whidbee 2003), CEOs' careers can be jeopardized. Third, since stock options are often periodically granted to CEOs at the money, ratcheted-up expected performance increases stock prices and reduces the value of stock options that are subsequently granted to CEOs. For example, studies (e.g., Baker et al. 2003; Balsam et al. 2003) show that option compensation is associated with income-decreasing earnings management in periods leading up to option-award dates. Due to these concerns, managers are more likely to consider the implications of ratcheting and create costly reserves (so-called "cookie jar"

---

[22] Managers with high equity incentives can also benefit from large unexpected favorable performance variances. However, Cheng and Warfield (2005) point out that managers tend to sell their own companies' rewarded equities (i.e., stock options and restricted stock) and receive recurring equity incentives. Hence, it is in the interest of managers to avoid a large unexpected favorable performance variance if they want to keep meeting or beating performance expectations.

[23] Matsunaga and Park (2001) focus on quarterly earnings expectations. However, I conduct an additional test (untabulated) to examine the effect of failing to meet or beat annual performance expectations on bonus rewards. My results support the argument that failing to meet or beat annual, expected performance is associated with a large bonus decline.

reserves) when underlying performance exceeds expected performance (e.g., Holthausen et al. 1995).[24]

The key point is that investors know much less about the operation of companies (i.e., information asymmetry) than managers do, and have to infer the companies' productivity[25] from reported performance.[26] Since reported performance contains useful information for predicting future performance, it is difficult, if not impossible, for investors and boards of directors to commit not to use the current reported performance explicitly or implicitly in future managerial contracts (i.e., limitations to making commitments). Therefore, the theory on dynamic contracting predicts that the ratchet effect will occur (i.e., managers will distort reported performance when anticipating that future performance will be ratcheted up) if information asymmetry exists and principals have limited ability to make a commitment not to use information from current performance in setting future standards (Jeitschko and Mirman 2002; Jeitschko et al. 2002; Laffont and Tirole 1993; Indjejikian and Nanda 1999).[27] Furthermore, prior studies (e.g., Weitzman 1980; Indjejikian and Nanda 1999) imply that the severity of ratcheting

---

[24] Several studies on earnings smoothing explain the downward earnings management from different perspectives (e.g., DeFond and Park 1997; Goel and Thakor 2003). However, all such studies are unable to predict the association between downward earnings manipulation and performance-expectation ratcheting.

[25] Productivity here is not related to managers' effort or innate ability.

[26] Previous studies have shown that current performance is positively correlated with future performance (e.g., Sloan 1996; Baber et al. 1999). Therefore, it is unlikely that an unexpected favorable performance variance leads to unfavorable changes in future performance.

[27] For example, in a principal-agent setting, since the principal knows little about the underlying productivity of the agent, he/she needs to rely on past performance to infer productivity after observing high performance, thereby raising his/her expectation. In addition, because the principal can't commit not to use such productivity information against the agent (limited commitment problem), the agent anticipates the ratcheting and will not reveal the truth to the principal (e.g., Milgrom and Roberts 1992).

problems (e.g., the reduced managerial effort and ex ante profits or losses) is positively associated with the intensity of performance-expectation ratcheting (i.e., the proportion of a company's unexpected performance variance translated into the next period's performance expectation). Although these studies do not directly tackle the earnings management issue,[28] it is easy to show in a stylized model (see Appendix B) that the extent of the downward earnings management is positively related to the intensity of performance-expectation ratcheting. Hence, I expect that managers facing intensive performance-expectation ratcheting will have a much stronger motivation to manage the next period's performance expectations through manipulating the current reported performance. My third hypothesis is:

> **H3:** When a company's pre-managed performance exceeds current earnings expectation, managers tend to engage in downward earnings management in the presence of intensive performance-expectation ratcheting.

I test this hypothesis by examining fourth-quarter earnings management, accruals management, and real activities manipulation. I first examine the association between ratcheting and fourth-quarter earnings management without assuming how managers manipulate earnings.[29] I predict that managers facing intensive performance-expectation

---

[28] In fact, the spirit of this study is similar to Indjejikian and Nanda's (1999). The difference is that Indjejikian and Nanda (1999) predict that a manager will reduce his early-period effort to dampen his reported performance in order to lower expectations of his future performance, whereas I expect that the manager can manage earnings down to manipulate the future performance expectation.

[29] Several studies (e.g., Das et al. 2007; Murphy 2001; Oyer 1998) show that the pattern of quarterly earnings, specifically the share of fourth-quarter earnings relative to annual earnings, can be used to detect earnings management. This is because the share of fourth-quarter earnings will change abnormally if managers manipulate annual reported performance after observing the previous three quarters' performance.

ratcheting will have strong incentives to decrease the fourth-quarter earnings when the previous three quarters' performance is unusually strong; by doing so, managers can lower future expectations and maximize their personal welfare, as discussed above.

The method using the share of fourth-quarter earnings relative to annual earnings to detect earnings management can incorporate both accruals and real earnings management. However, this method has some drawbacks. For example, fourth-quarter earnings can be negative or positive and the share of fourth-quarter earnings relative to annual earnings is not necessarily bounded between zero and 100%. To gain some insight regarding how managers manipulate earnings in response to performance-expectation ratcheting, I further investigate whether managers use discretionary accruals and real activities to decrease earnings when pre-managed earnings exceed current expectations. Similar to Holthausen (1995), I examine whether managers take income-decreasing discretionary accruals to manipulate the next period's performance expectation when pre-managed earnings are above the current expected earnings.

I next explore whether managers manipulate real activities to manage earnings downward due to their concerns about performance-expectation ratcheting. Including an examination of real earnings management is interesting and important because survey evidence (e.g., Bruns and Merchant 1990; Graham et al. 2005) suggests that managers are more willing to manipulate earnings through real activities than by managing accruals. For example, with the concern of performance-expectation ratcheting, if a manager exercises his/her discretion to increase the R&D expenditures, then current reported performance can be reduced to lower future performance expectations while avoiding scrutiny from auditors (or regulators) and improving the company's future performance.

Roychowdhury (2006) documents that companies intentionally manipulate sales (e.g., offering price discounts), change discretionary expenses (e.g., reduce R&D), and over- or under produce inventory to achieve earnings targets by increasing reported earnings. In contrast to his study, I expect managers in companies facing intensive performance-expectation ratcheting to engage in real activities with an intention to *reduce* reported performance when underlying performance is good. Therefore, I predict that managers tighten sales credit terms, limit price discounts, increase discretionary expenses, and/or under-produce goods more than necessary to lower current reported performance.

Another way to detect whether ratcheting is related to earnings management decisions is to explore how managers respond to temporary earnings increases (or temporary gains) under asymmetric ratcheting. The reason for this is that temporary earnings increases provide different incentives to manage earnings depending on whether or not managers expect the expected performance benchmark to ratchet asymmetrically or remain relatively fixed (Leone and Rock 2002).[30] Exhibit 1, adapted from Leone and Rock (2002), illustrates that managers make different earnings management decisions in response to temporary earnings increases based on whether performance expectations ratchet. For example, in Scenario II, if a manager facing performance-expectation ratcheting delays the recognition of the temporary earnings increase for one period, his/her expected bonus is -$7.42, which is higher than his/her expected bonus (-$11.91) when he/she chooses not to manage earnings downward in Period 0. However, a manager under no ratcheting can earn higher bonuses ($20 versus $14.55) by recognizing the

[30] As discussed in Leone and Rock (2002), if there is a transitory earnings increase, managers facing asymmetric ratcheting can delay the recognition of the transitory portion and receive more bonuses while managers facing little or no ratcheting are expected to recognize the transitory earnings increase and earn a higher bonus.

temporary earnings increase immediately in Period 0. Intuitively, if performance expectations are ratcheted up asymmetrically, the managers will fail to reach the performance targets and suffer the associated penalty for more than one period. In contrast, if there is no ratcheting, managers can earn high bonuses during the current period because of the temporary increase without being punished in the subsequent periods (see three scenarios in Exhibit 1).

Career concerns and discretionary bonuses for meeting or beating the performance expectation also explain why managers facing ratcheting seek to manage earnings when there is a temporary earnings increase. First, if performance expectations ratchet up, then temporary earnings increases raise subsequent expected performance asymmetrically and reduce managers' likelihood of meeting or beating performance expectations, thereby jeopardizing their current jobs. For example, Scenario I in Exhibit 1 shows that if a company's performance expectation ratchets up asymmetrically and managers manage earnings by delaying income recognition for one period, then the frequency of meeting or beating expectations can be increased. Managers who decide to delay the recognition of transitory earnings increases can double the frequency of meeting or beating expectations compared to the case with no earnings management. Second, increasing the frequency of beating or meeting performance expectations can bring more discretionary bonuses to managers. Scenario III, Exhibit 1, shows that managers can increase their welfare significantly by manipulating earnings under ratcheting. Hence, my fourth hypothesis is:

H4: When a company has temporary earnings increases, managers facing intensive performance-expectation ratcheting are more likely to lower reported earnings by using accruals and/or real earnings management.

Hypothesis 4 also assumes that underlying performance is superior (i.e., pre-managed performance exceeds the current expected performance). Therefore, Hypothesis 4 is, in fact, a special case of Hypothesis 3. However, ex ante, there are reasons to expect that we can gain additional insights by examining Hypothesis 4. First, as discussed above, managers may have stronger incentives to take income-decreasing earnings management under asymmetric ratcheting. Second, Hypothesis 4 explores the generalization of results documented in Leone and Rock's (2002) study for divisional managers by examining a similar scenario.

3.2 Research Design

Since my research interest in this chapter is to investigate the association between the variation of the ratchet effect and earnings management, I measure the intensity of performance-expectation ratcheting for each firm by estimating equation (2-1) from Chapter 2 with β_1 and β_2 as random coefficients at the firm level. That is, I estimate a random-coefficient model as follows:

$$\Delta S_{i,t+1} = \alpha_i + \alpha_t + \beta_0 D_{it} + \beta_{1i} UE_{it} + \beta_{2i} D_{it} \times UE_{it} + \gamma_1 Asset\_Growth_{i,t+1} + \varepsilon_{i,t} \text{.....(3-1)}$$

where β_{1i} and β_{2i} are firm-level random-coefficients.

In this model, each firm is allowed to have its own firm-specific β_1 and β_2. The model is analogous to firm specific regressions used in prior accounting research (e.g., Dechow and Dichev 2002) but a random-coefficient model can flexibly include common factors that affect each firm similarly. By estimating the random-coefficient model above, I obtain specific β_1 and β_2 and the corresponding p-values for each company. I am then able to categorize the sample firms into two sub-samples: firms with intensive ratcheting, and firms under little or no ratcheting based on β_1 and its corresponding p-value. I choose β_1 and its corresponding p-value as criteria because theoretical studies commonly suggest that β_1 can be used to quantify the intensity of the ratcheting effect (e.g., Weitzman, 1980). If a firm has a positive $\hat{\beta}_1$ with a less than 0.5 p-value,[31] I classify this firm as a ratcheting firm. I use the variable "RATCHETER" to denote whether or not the firm is a ratcheting firm. RATCHETER equals 1 for a firm with performance-expectation ratcheting and 0 otherwise. Hereinafter, I refer to firms with intensive ratcheting as "ratcheting firms" or "firms with performance-expectation ratcheting."

[31] Changing the cut-off p-value does not affect the inferences. I also tried different criteria for classifying "Ratcheter" (e.g., p-value of $\hat{\beta}_1 < 0.6$), and the results are similar. Considering both the sign and the p-value of $\hat{\beta}_1$ is, in fact, to take the magnitude of $\hat{\beta}_1$ into consideration relative to the variance-covariance matrix of $\hat{\beta}_1$. Alternatively, I use the signed magnitude of $\hat{\beta}_1$ (e.g., $\hat{\beta}_1 > 0.5$) as the cut-off point, and the main results are similar.

3.2.1 Fourth-Quarter Earnings Management

To test the association between performance-expectation ratcheting and fourth-quarter earnings management, I follow previous studies, such as Murphy (2001) and Das et al. (2007), and employ a similar model as follows:

$$Q4\_EARN\%_{it} = \alpha_t + \alpha_i + \beta_1 GoodYTD_{it} + \beta_2 GoodYTD_{it} \times RATCHETER_i + \beta_3 MTB + \varepsilon_{it} \quad \text{.....(3-2)}$$

where

$Q4\_EARN\%$ = actual Q4 EPS/current expected performance (S);

GoodYTD = 1, if the ratio of current earnings through the first three quarters to total annual reported earnings exceeds the average value of the same ratio over the past three years, and 0 otherwise;

$RATCHETER_i$ = 1, if firm i is identified as a firm with performance-standard ratcheting, and 0 otherwise (see Appendix C for details);

MTB = Log (MB), and MB is Ratio of Market Value (Compustat #199* #25) to the Book Value of Equity (Compustat #60).

The model and the empirical models hereinafter also include firm and year fixed effects to control for unobservable firm characteristics and economic changes.[32] Following Murphy (2001), I exclude observations with a Q4 share of earnings less than 0% or exceeding 100%. In addition, observations with an absolute value of Good YTD

---

[32] I do not include the variable "RATCHETER" as the main effect in any of all the empirical models in this paper because both firm fixed and year fixed effects will absorb the effect of "RATCHETER." The coefficient on "RATCHETER" is not my research interest, and including both firm fixed and year fixed effects is a conservative control. In untabulated tests, I use firm random effect models with the inclusion of "RATCHETER" to re-estimate the main empirical models in Chapter 3, and find even stronger results, except that the findings regarding the association between discretionary expenditures and ratcheting become insignificant. However, the Hausman tests imply that the random effects models are misspecified.

percent greater than 100% are excluded. In sum, these restrictions exclude about 13% of the sample observations. Based on the hypothesis (H3), I expect β_2 to be negative. I include MTB in the model to control firms' growth opportunities because studies (e.g., Lee et al. 2006) suggest that income-increasing earnings management is positively related to firms' growth. Consequently, the expected sign for the coefficient estimate on MTB is positive.

3.2.2 Accruals Management

For the test of the association between ratcheting and accruals management, I need to identify whether a company's pre-managed performance exceeds its expectation. Research documents substantial evidence that reported performance can reflect earnings management that is a bias from underlying earnings (Healy 1985; Teoh et al. 1998a, 1998b; Healy and Palepu 2001; Fields et al. 2001; Kothari 2001). Without considering such biases due to earnings management, reported earnings above performance expectations can be a mix of the economic earnings above or below performance expectations because managers can manipulate pre-managed earnings upward to meet or beat performance expectations when economic performance is below expectations. If I use reported performance to determine whether estimated unmanaged performance exceeds performance expectations, it is likely that my test will have low power or is even misspecified because a portion of reported earnings is the consequence of income-increasing earnings management. To overcome this issue, I estimate pre-managed earnings (EBDA) by adjusting abnormal (or discretionary) accruals (DA^{PMMJ}) back to reported earnings. I then construct a binary variable, MEET, by comparing EBDA to reported earnings to estimate whether the unmanaged performance is above current

performance expectations.[33] Since the independent variable MEET is constructed from DA^{PMMJ}, if the same accrual measure is used on the left-hand side, then a mechanical relation can be generated when the partition variable is highly correlated with the dependent variable, as documented by prior research (e.g., McNichols and Wilson 1988; Gaver et al. 1995; Leone and Rock 2002). Therefore, I choose another earnings management measure that has little correlation with DA^{PMMJ}. The variable I use is deferred tax expense (DTE), which Phillips et al. (2003) document as a measure that can detect earnings management, but has a low correlation with DA^{PMMJ}. I use the following model:

$$DTE_{it} = \alpha_t + \alpha_i + \lambda_1 MEET_{it} + \lambda_2 \text{MEET} \times \text{RATCHETER}_{it} + \lambda_3 \Delta CFO_{it} + \lambda_4 MTB_{it} + \lambda_5 ROA + \varepsilon_{it} \quad \text{.....(3-3)}$$

where:

DTE_{it} = Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets;

$MEET_{it}$ = 1, if both pre-managed earnings ($EBDA^{PMMJ}$) and reported performance (A) are above expected performance and 0 otherwise;

$EBDA^{PMMJ}_{it}$ = Firm *i*'s earnings before discretionary accruals

= Reported Earnings (actual in IBES)- DA^{PMMJ}_{it}×Asset(Computat #6)/(Adjusted Factor in IBES × common shares to compute basic EPS (Compustat #54));

$RATCHETER_i$ = 1, if firm i is identified as a firm with performance-standard ratcheting, and 0 otherwise (See Appendix C for details);

ΔCFO_{it} = the change in cash flows from continuing operations (annual Compustat #308-#124) from year t-1 to year t, scaled by total assets as of the beginning of year t;

---

[33] Please refer to Appendix D for the estimation procedure.

MTB = Log (MB), and MB is the Ratio of Market Value (Compustat #199* #25) to the Book Value of Equity (Compustat #60); and,

ROA = Income before extraordinary items (Compustat #18) scaled by lagged total assets (Compustat #6).

I predict that the coefficient λ_2 on MEET×RATCHETER will be negative because managers facing ratcheting would like to take income-decreasing accruals when underlying performance exceeds performance expectations. I control for firms' growth and performance by including MTB and ROA (e.g., Lee et al. 2006). Following Philips et al. (2003), I also include ΔCFO as another control for current performance.

3.2.3 Real Earnings Management

Following Roychowdhury (2006), I estimate abnormal cash flows (Abnormal CFO), abnormal discretionary expenses (Abnormal_DISEXP), and abnormal production costs (Abnormal_PROD) to measure real earnings management, including sales manipulation, management of discretionary expenses (i.e., R&D, advertising and SG&A expenses), and over- or under-production.

The basic empirical model I use to examine the association between real earnings management and performance-expectation ratcheting is as follows:

$$Y_{it} = \alpha_i + \alpha_t + \beta_1 MEET_{it} + \beta_2 MEET_{it} \times RATCHETER_i + \beta_3 SIZE_{it} + \beta_4 MTB_{it} + \beta_5 ROA_{it} + \varepsilon \quad \text{.....(3-4)}$$

where Y_{it} = Abnormal_CFO, Abnormal_DISEXP, or Abnormal_PROD;[34]

SIZE = Log of the Market Value of Equity (Compustat #199× Compustat #25);

MTB = Log of MB, and MB is the ratio of Market Value (Compustat #199× #25) to Book Value (Compustat #60); and,

ROA = Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6).

I predict that the coefficient (β_2) on MEET×RATCHETER is positive when the dependent variable is Abnormal_DISEXP (abnormal discretionary expenses) because managers can increase spending on discretionary expenses to manage current reported earnings downward with an intention of influencing expected performance during the next period. Likewise, the coefficient (β_2) is expected to be positive when the dependent variable is Abnormal_PROD (abnormal production costs)[35] or Abnormal_CFO (abnormal cash flows from operation), because limiting the usage of price discounts and under-production will lead to abnormally low production costs relative to dollar sales, and tightening sales credits, under-producing, and reducing the usage of price discounts can increase abnormal CFO relative to sales. On the other hand, as discussed by Roychowdhury (2006), since abnormally high discretionary expenses can reduce cash flows from operations, in contrast to the effect from sales manipulation and under-production, the direction of Abnormal CFO is ambiguous. Following Roychowdhury

---

[34] The estimation procedures for abnormal cash flows (Abnormal CFO), abnormal discretionary expenses (Abnormal_DISEXP), and abnormal production costs (Abnormal_PROD) can be found in Appendix C.

[35] Since I use Abnormal_PROD to measure the degree of under-production, the Abnormal_PROD variable in this paper is the variable (abnormal production cost) used by Roychowdhury (2006) multiplied by -1.

(2006), I also control for firms' growth and performance by including MTB, SIZE, and ROA variables.

3.2.4 Temporary Earnings Increases

To examine Hypothesis 4, I need to construct a variable to identify transitory earnings increases. Although I cannot directly observe a firm's transitory earnings increases, following Leone and Rock (2002) I construct a proxy, TEMP, for the existence of transitory earnings increases by comparing current performance to subsequent performance. Specifically, TEMP is 1 if the current period earnings before discretionary accruals (EBDA) are greater than both the next period's EBDA and the current performance expectations and if reported earnings are larger than the current expected performance,[36] and 0 otherwise. EBDA is constructed by subtracting discretionary accruals (DA) from net income. Therefore, I use the following model:

$$DTE_{it} = \alpha_t + \alpha_i + \lambda_1 TEMP_{it} + \lambda_2 RATCHETER_i \times TEMP_{it} + \lambda_3 \Delta CFO + \lambda_4 MTB + \lambda_5 ROA(or EBDA) + \varepsilon_{it} \quad \text{.....(3-5)}$$

where: DTE_{it} = Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets;

$TEMP$ = 1, if $EBDA^{PMMJ}{}_{it} > EBDA^{PMMJ}{}_{it+1}$, $EBDA^{PMMJ}{}_{it}$ > Expected performance($S_{i,t}$) and reported earnings (A_t) > S_t, and 0 otherwise;

$EBDA^{PMMJ}{}_{it}$ = Firm i' earnings before discretionary accruals

---

[36] Requiring reported earnings to be larger than current, expected performance is critical because Hypothesis 4 emphasizes that meeting or beating expected performance consistently is important to managers.

= reported Earnings - DA^{PMMJ}_{it}; and,

$RATCHETER_i$ = 1, if firm i is identified as a firm with performance standard ratcheting, and 0 otherwise (see Appendix C for details).

Hypothesis 4 predicts that managers in ratcheting firms are more likely to delay the recognition of temporary earnings gains through discretionary accruals than managers in firms with fixed targets. λ_2 captures the discretionary accruals difference between the above two types of firms when there are temporary gains. Hence, λ_2 is anticipated to be negative.

I also examine the effect of TEMP on real earnings management for firms under ratcheting. The basic empirical model is:

$$Y_{it} = \alpha_i + \alpha_t + \beta_1 TEMP_{it} + \beta_2 TEMP_{it} \times RATCHETER_i + \beta_3 SIZE_{it} + \beta_4 MTB_{it} + \beta_5 ROA_{it} + \varepsilon \quad \text{.....(3-6)}$$

where Y_{it} = Abnormal_CFO , Abnormal_DISEXP or Abnormal_PROD.[37]

Similar to the discussion in Section 3.2.3, I predict that β_2 is positive.

[37] Please see Appendix C for definitions of the other variables.

3.3 Sample Selection and Descriptive Statistics

3.3.1 Sample Selection

Similar to the sample used in Chapter 2, the sample is chosen from the intersection of firms contained in the Computstat database and the Institutional Brokers Estimate System (I/B/E/S) database from 1990 to 2002 (see Table 1). However, the sample in this chapter is not subject to the constraints from the coverage of corporate governance data. I include consensus analyst forecasts of firms only if they are followed by at least three analysts to ensure the reliability of the proxy for performance expectations. In addition, to separate the sample into two sub-groups (ratcheting firms and non-ratcheting firms) I limit the sample to the firms with at least a six-year history on the I/B/E/S. To tackle the rounding-to-the-nearest-penny problem in the I/B/E/S-adjusted data raised by Payne and Thomas (2003), I choose unadjusted I/B/E/S data and adjust them back using historical adjustment factors. The sample for identifying the extent of performance-expectation ratcheting consists of 15,318 firm-year observations. However, in the tests related to earnings management, the sample size is further reduced to 9,171 firm-year observations or less because of the availability of certain variables.[38] When I estimate discretionary accruals (See Appendix D), I exclude all firm-year observations where there are fewer than 6 observations in any two-digit SIC code in any given year (e.g., Li et al. 2007; Kothari et al. 2005). I also exclude financial institutions (SIC codes 6000-6999) because discretionary accruals estimation is problematic for these companies

[38] Since deferred tax expense, one of my proxies for accruals management, is computed in accordance with SFAS No109 (1992), I also drop observations before fiscal year 1992 in tests using deferred tax expense as a dependent or independent variable.

(e.g., DeFond and Subramanyam, 1998). Consistent with prior research, I exclude observations having estimated discretionary accruals below the 1st percentile or above the 99th percentile (e.g., DeFond and Subramanyam, 1998; Phillips et al., 2003). To control for extreme observations, I winsorize all continuous variables below the 1st percentile or above the 99th percentile. Results are qualitatively the same without winsorization.

3.3.2 Descriptive Statistics

Table 8 reports the descriptive statistics for the samples. Panel A reports the descriptive statistics for the overall sample. The mean value of unexpected performance (UE), which reflects consensus analyst forecast nine months prior to year-end, is negative, consistent with literature indicating that long-term analyst forecasts are optimistic (e.g., Richardson et al. 2004).

Panel B shows the correlations among the continuous variables used for the accruals management tests. The Pearson correlation between DTE and DA^{PMMJ} is only 0.064 , suggesting that the mechanical relation issue discussed before is of little concern.

In Panel C, we observe that the correlations between the three real earnings management measures and the accruals earnings management measure are low, and that the correlations among the three real earnings management measures are similar to those documented by Roychowdbury (2006).

3.4 Empirical Results

In this section, I report the results of hypothesis tests. To lessen the effect of outliers, I eliminate observations with studentized residuals greater than 2 by following previous studies (e.g., Walther 1997; Leone et al. 2006). Section 3.4.1 classifies the sample into the group under intensive ratcheting, and the group with little ratcheting. I discuss the relation between performance-expectation ratcheting and earnings management in Section 3.4.2, and provide additional tests to check the robustness of the results in Section 3.4.3.

3.4.1 Exploring the Cross-sectional Variation of Ratcheting

To explore the cross-sectional variation of ratcheting, I repeat the regression based on Equation (3-1) by assuming that coefficients β_1 and β_2 vary in companies as discussed in Section 3.2 and separate the sample into two groups: firms with intensive ratcheting and others. Panel A, Table 9 shows that the sample separation is successful. For companies facing intensive performance-expectation ratcheting (RATCHETERS), the coefficient estimate of ($\hat{\beta}_1$) on UE is 1.384 and significant at the 1% level, in contrast to 0.358 for the corresponding estimate in other companies facing little ratcheting effect. I also conduct an additional test to check the reliability of my measure for performance-expectation ratcheting in Panel B. Although directly observing performance-expectation ratcheting is unlikely, Murphy (2001) predicts that managers in companies using internal performance standards are more likely to face the ratchet effect than those in companies

using external performance standards. I use Murphy's sample[39] and repeat the regression, and the results show that companies using internal performance standards do show much stronger performance-expectation ratcheting than firms using external performance standards, in the way that I measure the ratcheting.

3.4.2 Earnings Management

In Table 10, Panel A, the coefficient estimate on GoodYTD×RATCHETER is significantly negative ($p < 0.05$) and has a value of -0.009. This means that companies facing intensive ratcheting appear to intentionally lower earnings by an extra 0.9% when the previous three quarter's earnings are superior. The coefficient on GoodYTD is -.039 and significant at the 1% level, which is consistent with the expectation that companies tend to smooth earnings when the first three quarters' earnings are good.

Table 10, Panel B reports the relation between accruals earnings management and performance-expectation ratcheting. The coefficient estimate on MEET×RATCHETER is significantly negative (-0.255 in Column (2), and $p < 0.01$), suggesting that, compared with managers under little or no ratcheting, managers under intensive ratcheting would like to engage in income-decreasing accruals with an intent to influence the next period's expected performance when underlying performance exceeds current performance expectations. In addition, the combination of $\hat{\lambda}_1 + \hat{\lambda}_2$ is significantly negative (-0.136, $p<0.01$), suggesting that managers under intensive ratcheting intentionally reduce reported income when underlying performance exceeds current performance expectations. The coefficient on MTB in Column (1) is significantly positive, which is consistent with

[39] I collect the data from Appendix A of Murphy (2001)'s study.

the argument that firm growth is positively associated with income-increasing earnings management (e.g., Lee et al. 2006). However, when the performance variable, ROA, is included in the regression, the sign of the coefficient estimate on MTB flips, probably because there is a high correlation between MTB and ROA ($\rho = 0.318$ in a Pearson test in Panel B, Table 8).

Table 10, Panel C presents the results from estimating Equation (3-4) and examines whether the ratcheting impacts managerial earnings management decisions in terms of real activities manipulation. Columns (1)-(3) report the regression results by using Abnormal_DISEXP (abnormal discretionary expenses), Abnormal_PROD (abnormal production costs), and Abnormal_CFO (abnormal cash flows from operations) as dependent variables respectively. The coefficient estimates on MEET×RATCHETER are significantly positive (0.990, 1.425, and 1.368) in Columns (1)-(3). Overall, the combination of coefficient estimates on MEET×RATCHETER in Columns (1)-(3) supports the hypothesis that managers facing intensive ratcheting engage in real activities to decrease current performance when the underlying performance is above current performance expectations. The effect of real earnings management due to ratcheting on current performance is nontrivial. For example, according to the results in Column (1), companies under intensive ratcheting, on average, increase discretionary expenses by about 1% of asset value after controlling for size, firm growth, and performance, compared with other companies. Since $\hat{\beta}_1 + \hat{\beta}_2$ is significantly positive ($\hat{\beta}_1 + \hat{\beta}_2 = 1.104$, $p < 0.01$ in Column (1); $\hat{\beta}_1 + \hat{\beta}_2 = 2.177$, $p < 0.01$ in Column (2); $\hat{\beta}_1 + \hat{\beta}_2 = 3.349$, $p < 0.01$ in Column (3)), the results in Panel C also suggest that companies under ratcheting engage in income-decreasing real activities when the current underlying performance

exceeds expectations compared to when the underlying performance is below expectations.

Table 11 reports the results from estimating Eq. (3-5) and (3-6) to examine Hypothesis 4. Table 11, Panel A provides the results regarding the association between performance-expectation ratcheting and deferred tax expense. Results in all three columns are consistent, but subject to the inclusion of control variables. The coefficient estimate ($\hat{\lambda}_2$) on TEMP×RATCHETER is negative ($\hat{\lambda}_2$ = -0.119) and statistically significant ($p < 0.05$) in Column (2), suggesting that managers under intensive ratcheting engage in income-decreasing accruals to lower reported earnings in response to temporary gains compared with other managers. Compared to the case in which there is no temporary earnings increase, the results also indicate that managers under intensive ratcheting engage in income-decreasing accruals to lower reported earnings ($\hat{\lambda}_1 + \hat{\lambda}_2 = -0.086$, $p < 0.05$) in Column (2), but the magnitude is smaller than those estimated in Panel A, Table 8.

Table 11, Panel B reports the results of estimating Equation (6) by using abnormal discretionary expenses (Abnormal_DISEXP), abnormal production costs (Abnormal_PROD), and abnormal cash flows from operations (Abnormal_CFO) as dependent variables, respectively. All the coefficient estimates on TEMP×RATCHETER are positively significant, supporting the argument that performance-expectation ratcheting affects real earnings management when managers face temporary earnings increases.

Overall, the results in Panels A and B in Table 11 suggest that managers under ratcheting are more likely to engage in income-decreasing real activities rather than accruals to lower reported earnings when there is a temporary earnings increase.

3.4.3 Additional Tests

I have included firm and year fixed effects to control for unobserved firm characteristics and economic factors in the tests for the association between ratcheting and earnings management. However, some time-varying firm characteristics between ratcheting firms and non-ratcheting firms may not be controlled. In Panel A, Table 12, I explore the characteristic differences between the types of firms ("RATCHETERS" versus "NON-RATCHETERS"). Panel A shows that, although the market value of these two types of companies are similar, ratcheting firms have a higher market-to-book ratio and lower assets, on average, than non-ratcheting companies, suggesting that a larger amount of intangible assets in ratcheting firms is not captured by the financial reporting system. This is consistent with the theory on ratcheting that information asymmetry is related to the ratchet effect. Ratcheting firms' earnings, stock volatility and beta are significantly higher than those of non-ratcheting companies.[40] In addition, a higher percentage of ratcheting firms' equities is held by institutional investors, who can potentially put pressure on managers to consistently meet or beat performance expectations. In Panels B-D of Table 12, I repeat my main tests by controlling for

[40] These differences indicate that the current reported earnings are more informative about the next period's performance, thereby significantly affecting the next period's performance expectations.

observed time-varying characteristics between ratcheting firms and non-ratcheting companies. The main conclusions remain the same.

Several studies (e.g., Healy 1985; Holthausen et al. 1995; Gaver et al. 1995) document that managers engage in income-decreasing accruals to maximize bonus pay over time when underlying economic performance is above the upper-bound of the bonus plans. The earnings management resulting from the non-linearity of bonus plans is unlikely to explain my results because this study compares companies facing intensive ratcheting to companies under little or no ratcheting. If companies randomly impose a performance upper-bound in short-bonus contracts, the effect of earnings management due to the upper-bound can be canceled out through the comparison. However, it is a concern that imposing a performance upper-bound in bonus contracts is not randomly distributed. To mitigate this concern, I conduct a sensitivity check by truncating unusually high performance relative to performance expectations.[41] In Table 13, Panel A, I repeat the regression on the test of accruals management (Eq. (3-3)) by excluding all observations with unexpected earnings larger than 3 cents or larger than 5 cents per share. The coefficient estimates on MEET × RATCHETER become more negative compared to the same estimates using the non-truncated sample. Panels B and C in Table 13 repeat the same procedure on the examination of Eq. (3-4), and the coefficient estimates on MEET× RATCHETER indicate that the income-decreasing earnings management predicted from the ratchet effect is even stronger in the truncated samples than in the original sample. These results in Table 13 suggest that it is unlikely that my primary findings on the

[41] Leone et al. (2006) use a similar procedure.

association between earnings management and performance-expectation ratcheting are attributable to the piece-wise linear structure of bonus plans.

Managers may lower earnings for capital market reasons. For instance, prior studies suggest that managers believe that smoothing earnings can lower costs of capital (Goel and Thakor 2003; Graham et al. 2005). To rule out these capital market explanations, I also include three variables (EARN_VOL, STK_VOL, and Beta) to proxy for risks of firms, and let these variables interact with the variable MEET. If my main results are solely due to these capital market reasons, including these risk variables and their corresponding interaction terms with the variable MEET should suppress the significance of the coefficients on my research interest variables. Panels A and B in Table 14 show that the main conclusions regarding the relation between ratcheting and earnings management still hold even though the evidence for the association between abnormal discretionary expense manipulation and ratcheting becomes weak.

In addition, I have conducted out-of-sample tests to ensure that the classification of ratcheting versus non-ratcheting companies does not self-explain the earnings management results, and to increase our confidence in the conclusion that ratcheting leads to earnings management. For example, we might argue that if investors anticipate income-decreasing earnings management from ratcheting firms, they may ratchet up their expectations further after observing good performance. That is, there is a feedback effect due to ratcheting. Hence, it is important to have out-of-sample tests to ensure that the feedback effect discussed above does not explain away the directional relation between

ratcheting and income-decreasing earnings management.[42] In Table 15, I first use the sample from 1990 to 1995 to determine whether a company is a ratcheting firm or not, and then run regressions to investigate the association between earnings management and ratcheting from 1996 to 2002. Although the sample size is reduced to about 25% of the sample used in Table 10, Panel A of Table 15 reports similar results on the association between accruals management and ratcheting. Panel B reports an insignificant coefficient on MEET×RATCHETER in Column (1), indicating that discretionary expense manipulation may not be related to ratcheting when companies have good performance. However, results in Columns (2) & (3) support the conclusion that ratcheting is related to real activities manipulations (i.e., production manipulations and sales manipulations) because the coefficients on MEET×RATCHETER in Columns (2) & (3) are either significantly positive at the 1% level or are consistent with the prediction even though the coefficient on MEET×RATCHETER in Column (2) is weak (i.e., only approaches significance at conventional levels).

3.5 Summary

Overall, I find that the intensity of performance-expectation ratcheting is related to the extent of income-decreasing earnings management. Managers facing intensive performance-expectation ratcheting tend to manage earnings downward when the underlying performance is good (i.e., it exceeds current expected performance). In

---

[42] In other words, the results we observe arise from the fact that ratcheting leads to income-decreasing earnings management instead of the possibility that income-decreasing earnings management causes ratcheting.

addition, when there is a temporary earnings increase, managers facing intensive performance-expectation ratcheting prefer to use real activities to manipulate earnings downward. We need to interpret some of results in this chapter with caution. For example, the finding on the relation between discretionary expense manipulation and ratcheting does not survive in two of the robustness checks.

Chapter 4
Conclusion

This study documents that performance-expectation ratcheting is prevalent and asymmetric, that the extent of ratcheting is positively associated with the strength of external corporate governance (i.e., anti-takeover provisions), and that there is a relation between income-decreasing earnings management and ratcheting. The results suggest that the extent of ratcheting has no relation with internal governance such as ownership concentration and board structure.

More specifically, I find that current positive unexpected performance leads to a greater absolute change in the next year's performance expectation than does a negative unexpected performance of the same magnitude. Furthermore, this study finds that a larger portion of positive unexpected performance will be reflected in the next period's expectation for companies with strong external governance. More important, I find that the intensity of performance-expectation ratcheting is related to the extent of income-decreasing earnings management. Overall, managers facing intensive performance-expectation ratcheting tend to manage earnings downward by using accruals and activities manipulation (i.e., sales manipulation, intentional changes in discretionary expenses, and underproduction) when the underlying performance is good (i.e., it exceeds current expected performance). In addition, when there is a temporary earnings increase, managers facing intensive performance-expectation ratcheting tend to use real activities to manipulate earnings downward. The results are robust after I control for the "upper-bound" of bonus plans, costs of capital, and other time-varying firm characteristics in

addition to unobserved firm and year characteristics. Out-of-sample tests further verify that intensive performance-expectation ratcheting leads to income-decreasing earnings management.

This study is subject to several research caveats. First, the empirical evidence regarding the association between discretionary expense management and ratcheting is sensitive to two of the robustness checks; thus, we need to interpret these results with caution. Second, performance-expectation ratcheting is a dynamic process and requires long time-series data to estimate, but the business environment varies from time to time; therefore, my measure for performance-expectation ratcheting tends to be noisy, thereby weakening the predicted relations I intend to examine.

My study has implications for investors and regulators. For investors, this study finds that ratcheting companies tend to take income-decreasing earnings management when their performance is good. This finding can potentially help investors better predict companies' performance by considering potential earnings "reserves." For regulators, recent corporate reforms including the Sarbanes-Oxley Act have highlighted the importance of corporate governance, but how corporate governance impacts corporate behavior is not clear. The results in this study suggest that regulators need to consider the importance of external governance (i.e., shareholder rights) on corporations instead of only focusing on internal governance if they want to change the way investors process performance information.

While I argue that performance-expectation ratcheting is associated with external governance and earnings management, there is no empirical evidence to support whether

or not performance-expectation ratcheting can affect companies' investment behavior and performance. In an exploratory test, I use the early period (1990-1995) of the sample to determine the extent of ratcheting, and examine the performance difference in the out-of-sample period (1996-2002) between ratcheting and non-ratcheting companies. The results show that ratcheting firms earn higher annual abnormal stock returns[43] than non-ratcheting firms by 4.6%, and ratcheting firms' ROA is also 3.8% higher than that of non-ratcheting firms. However, my exploratory test does not control for firm size, book-to-market ratio and momentum, and is unable to rule out the possibility that other capital market anomalies may explain the results. Future research can investigate whether performance-expectation ratcheting affects managerial investment horizons, and whether or not performance-expectation ratcheting benefits investors overall.

Furthermore, previous studies and this paper argue that performance-expectation ratcheting can benefit companies by reducing management slack in performance benchmarks, by encouraging managers to generate permanent earnings, and by decreasing excessive pay to managers. However, the empirical evidence on how ratcheting benefits companies is lacking. Future research can identify the sources of improved performance due to the effect of performance-expectation ratcheting.

Moreover, theoretical studies suggest that the intensity of performance-expectation ratcheting is related to the form of executive compensation (Weitzman 1980; Zou 1991; Indjejikian and Nanda 1999). For example, analytical studies imply that firms

---

[43] Abnormal stock returns are the adjusted returns by using the market model. Beta is estimated using the prior 5 years of monthly returns.

with intensive ratcheting likely offer managers more equity rewards to offset the potential adverse effect from performance-expectation ratcheting (e.g., reducing efforts to under-report earnings due to intensive ratcheting). However, offering equity compensation (e.g., options or stock) has its own costs. Studies suggest that excessive equity pay increases earnings management activities (Cheng and Warfield 2005; Bergstresser and Philippon 2006; Burns and Kedia 2006; Peng and Roell 2008). Therefore, it is important for researchers to investigate how companies determine both equity pay and the expected earnings management simultaneously under the given intensity level of performance-expectation ratcheting in future research.

We also can extend this study by exploring how managers alternatively/complementarily use different means to manipulate performance expectations. For example, managers can use management forecasts, management discussion and analysis, and/or other voluntary disclosures to manage performance expectations instead of distorting reported performance. Potential trade-offs among the means for managers to manipulate performance expectations need to be explored.

In addition, future research could examine how the strength of corporate governance affects the persistence of earnings specifically. This paper shows that external corporate governance is associated with the extent of ratcheting. Additional topics for future research include: (1) the persistence of earnings related to different corporate governance measures; (2) the sources (e.g., earnings reserves or other mechanisms) of the earnings persistence associated with corporate governance.

Appendix A

The impact of analysts' biases

Suppose a simple setting where one of the independent variables (i.e., one column of X) has a constant bias.

Let $Y = X^*\beta + \varepsilon$, and $X = X^* - D_d c$,

where $D_d = \begin{bmatrix} 0 & .0 & 1 & 00 \\ : & .. & 1 & ..0 \\ : & : & : & .: \\ 0 & 0 & 1 & .0 \end{bmatrix} = \begin{bmatrix} 0_{n\times1,1} & \ldots & l_{n\times1,d} & .. & .. & 0_{n\times1,k} \end{bmatrix}$, $l_{n\times1,d} = \begin{bmatrix} 1 \\ : \\ : \\ 1 \end{bmatrix}$, $\beta = \begin{bmatrix} \beta_0 \\ : \\ \beta_d \\ : \end{bmatrix}_{K\times1}$, and

c is a constant scalar.

$$p\lim\ b = p\lim[(X^TX)^{-1}X^TY] = p\lim[(X^TX)^{-1}X^T(X\beta + D_d c\beta + \varepsilon)]$$

$$= \beta + (X^TX)^{-1}X^T l_d c\beta_d = \beta + \begin{bmatrix} 1 \\ 0 \\ : \\ 0 \end{bmatrix} c\beta_d .$$

Hence, the constant bias goes to the intercept term, β_0, or $b_0 = \beta_0 + c\beta_d$. Since my research interest is in the non-intercept terms, a constant bias does not affect my analysis.

Note 1: $(X^TX)^{-1}X^T l_d$ can be regarded as a solution $a = \begin{bmatrix} a_0 \\ : \\ : \\ a_{k-1} \end{bmatrix}$ to

$a_0 l + a_1 x_1 + a_2 x_2 + \ldots + a_{k-1}x_{k-1} = l$, where $x_1, x_2 .. x_{k-1}$ are independent vectors.

Appendix B

Relation between performance-expectation ratcheting and earnings management

In a setting similar to Weitzman (1980)'s, I examine a simple 2-period model where a manager tries to manipulate earnings to maximize his/her welfare.

Assume that the economic earnings in Period 1 and Period 2 are x_1 and x_2, and can be observed by managers but not by other parties, and that the manager decides to disclose the reported earnings (r_1) at the end of Period 1. Managed earnings is m, where $m = x_1 - r_1$. Suppose the manager uses accruals to manage earnings, we can have#

$$r_1 = x_1 - m \quad \text{.....(1)}$$

$$r_2 = x_2 + m \quad \text{.....(2)}$$

I denote the performance expectation in period t as s_t. The performance-expectation ratcheting form can be postulated as

$$s_{t+1} - s_t = \rho(r_t - s_t) \quad \text{.....(3)}$$

where ρ is the intensity of ratcheting.

I assume that the bonus received by the manager is: $\beta(r_t - s_t)$, where β is a pay-performance sensitivity coefficient and is greater than 0. If the manager manipulates earnings, the cost of managing earnings is $\frac{1}{2}m^2$. I adopt a quadratic cost function to capture the feature that both the cost and the marginal cost of earnings management are increasing in the amount of managed earnings.

The problem for the manager is to maximize his/her two-period bonuses:

$$\underset{m}{Max} \quad \beta(r_1 - s_1) + \beta(r_2 - s_2) - \frac{1}{2}m^2 \quad \text{.....(4)}$$

Plugging (1)-(3) into (4), we can have

$$\underset{m}{Max} \quad \beta(x_1 - m - s_1) + \beta\{x_2 + m - [\rho(x_1 - m) + (1-\rho)s_1]\} - \frac{1}{2}m^2 \quad \text{..... (5)}$$

The first-order condition of Equation (5) will be

$m^* = \beta\rho$

Therefore,[##]

$$\frac{\partial m^*}{\partial \rho} = \beta > 0$$

That is, the amount of downward earnings management increases in the intensity of performance-expectation ratcheting.

Note: There is no ratcheting problem in Period 2. Therefore, the reversal of m in Period 2 is not a concern but a blessing to the manager. Furthermore, I can relax the assumption by allowing pay-performance sensitivities to vary across two periods with a discount factor δ, but the conclusion is the same. I also do not consider the investors' reaction to earnings management. This exclusion is consistent with the argument that allowing earnings management can benefit the investors (e.g., Demski and Frimor, 1999).

This implies that $r_1 + r_2 = x_1 + x_2$, which is a common assumption used by several analytical studies on earnings management (e.g., Nan, 2007).

The second-order derivative of Equation (5) is less than 0.

Appendix C

Variable descriptions:

A_t	The reported performance; the actual EPS for period t from I/B/E/S.
S_t	The expected performance for period t; consensus forecasts (median forecasts in I/B/E/S) nine-months prior to the end of fiscal years deflated by the beginning assets per share.
UE	The actual performance (A_t) for period t - the expected performance (S_t) for period t; UE is deflated by the beginning assets per share.
Asset_Growth	Expected asset growth; it is calculated as [(Compustat $\#6_{t+1}$- Compustat $\#6_t$)/ Compustat $\#6_t$].
D_t	A binary variable that is set equal to1 if $A_t < S_t$ and 0 if $A_t \geq S_t$.
ΔS_{t+1}	Change in expected performance, S_{t+1}-S_t.
Total Assets	Total Assets, Compustat #6.
Sales	Sales, Compustat #12.
Sales_Growth	Expected sales growth [(Compustat $\#12_{t+1}$- Compustat $\#12_t$)/ Compustat $\#12_t$].
MB	Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60).
G_Index	Corporate governance index created by Gompers et al. (2003) using the IRRC data.
ATI	Alternative takeover vulnerability index, which incorporates three takeover provisions (blank check preferred, staggered boards, and restrictions on calling special meetings or acting by written consent).
BLOCK	The fraction of outstanding shares owned by institutional blockholders (Spectrum data); a blockholder is defined as a shareholder who holds more than 5 percent of outstanding shares.
ALL_BLOCK	The percentage of outstanding shares held by all blockholders for that firm-year (data are retrieved from Dlugosz et al. 2006)
OUT_BLOCK	The percentage of outstanding shares held by all outside blockholders (data are retrieved from Dlugosz et al. 2006);
BOARD_SIZE	The number of members of the board of directors as of the annual meeting date during each fiscal year (from the IRRC);

SEPARATE_CHAIR	1, if the chief executive officer (CEO) and chairperson of the board (COB) are held by different people; 0, otherwise (from the IRRC)
BOARD_INDEP	1, if the fraction of directors who are classified as independent is bigger than 50%; 0 otherwise (from the IRRC).
DA^{PMMJ}	Abnormal Accruals; see Appendix D for its estimation procedure.
$EBDA^{PMMJ}{}_{it}$	Firm *i*'s earnings before discretionary accruals. Reported Earnings (actual in IBES)- $DA^{PMMJ}{}_{it} \times Asset_{t-1}$(Computat #6)/[Adjusted Factor in IBES ×Common shares to compute basic EPS (Compustat #54)].
DTE_{it}	Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets.
$MEET_{it}$	A binary variable that is set equal to 1 if both pre-managed earnings ($EBDA^{PMMJ}{}_{it}$) and reported performance are above expected performance, and 0 otherwise.
$RATCHETER_i$	A binary variable that is set equal to 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise. We identify whether a firm is subject to intensive performance-expectation ratcheting by determining if a firm-specific coefficient estimate $\hat{\beta}_1$ is greater than 0 with a p-value less than 0.5. $\hat{\beta}_1$ and its p-value are estimated from Equation (1-1): $\Delta S_{i,t+1} = \alpha_i + \alpha_t + \beta_0 D_{it} + \beta_{1i} UE_{it} + \beta_{2i} D_{it} \times UE_{it} + \gamma_1 Asset\_Growth_{i,t+1} + \varepsilon_{i,t}$ (A further discussion is in Section 3.2)
MTB	Logarithm of MB. MB = Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60).
ΔCFO_{it}	the change in cash flows from continuing operations (annual Compustat #308-#124) from year t-1 to year t, scaled by total assets as of the beginning of year t;
ROA	Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6).
$SIZE$	Logarithm of the Market Value of Equity (Compustat #199× Compustat #25).
$TEMP$	A binary variable that is set equal to 1 if $EBDA^{PMMJ}{}_{it} > EBDA^{PMMJ}{}_{it+1}$, $EBDA^{PMMJ}{}_{it}$ > Expected Performance (S_{it}) and Reported Earnings (A_{it}) > S_{it}, and 0 otherwise.

Q4_EARN%	Actual Q4 EPS (from I/B/E/S) /Current Expected Performance (S).
GoodYTD	A binary variable that is set equal to 1 if the ratio of Current Earnings through the first three quarters of annual reported earnings exceeds the average value of the same ratio over the previous three years (in I/B/E/S), and 0 otherwise.
Abnormal_CFO	Abnormal Cash Flows from operations. Measured as the deviation from the predicted values of the corresponding industry-year regression: $CFO_t / Asset_{t-1} = \alpha_0 + \alpha_1(1/Asset_{t-1}) + \beta_1(Sales_t / Asset_{t-1}) + \beta_2(\Delta Sales_t / Asset_{t-1}) + \varepsilon_t$ where: CFO = Cash flow from operations, Compustat #308; Asset = Total Assets, Compustat #6; Sales = Sales, Compustat #12; Δ Sales = Change in Sales. The two-digit SIC code is used to identify an industry (see Roychowdhury 2006).
Abnormal_DISEXP	Abnormal Discretionary Expenses, measured as deviations from the predicted values from the corresponding industry-year regression: $DISEXP_t / Asset_{t-1} = \alpha_0 + \alpha_1(1/Asset_{t-1}) + \beta_1(Sales_{t-1} / Asset_{t-1}) + \varepsilon_t$ where: DISEXP = discretionary expenses (R&D (Compustat #46)+ Advertising (Compustat #45) + Selling, General & Administrative expenses (Compustat #189)); as long as SG&A is available, advertising and R&D are set to zero if they are missing; Asset = Total Assets, Compustat #6; Sales = Sales, Compustat #12. The two-digit SIC code is used to identify an industry (see Roychowdhury 2006).

Abnormal_PROD	Abnormal production costs. Measured as deviations from the predicted values from the corresponding industry-year regression multiplied by -1: $PROD_t / Asset_{t-1} = \alpha_0 + \alpha_1(1/Asset_{t-1}) + \beta_1(Sales_t / Asset_{t-1}) + \beta_2(\Delta Sales_t / Asset_{t-1}) + \beta_3(\Delta Sales_{t-1} / Asset_{t-1}) + \varepsilon_t$ where: PROD = Production Costs; COGS (Compustat # 41) + Change in Inventory, Inventory is Compustat #3; Asset = Total Assets, Compustat #6; Sales = Sales, Compustat #12; Δ Sales = Change in Sales. The two-digit SIC code is used to identify an industry (see Roychowdhury 2006).
MV	The market value of a company's equity (Compustat #199×Compustat #25)
AF	Number of analysts who issued earnings forecasts nine-months prior to the end of e fiscal year.
INT_HOLD	The percentage of shares held by institutional investors (Thomson Financial);
STK_VOL	The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year.
EARN_VOL	The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years.
Beta	Beta is estimated from a market model that regresses firm returns on market returns using monthly return data over the past 5 years prior to the current fiscal year t.

Appendix D

Estimation of abnormal (discretionary) accruals (DA^{PMMJ})

I estimate abnormal accruals by using the performance-matched modified-Jones (PMMJ) model. The procedure is similar to that used in previous studies, such as Li et al. (2007) and Kothari et al. (2005). I first compute total accruals using data from the statement of cash flows (Hribar and Collins 2002):

$$TAcc_{it} = EBEI_{it} - (CFO_{it} - EIDO_{it}), \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

where: $TAcc_{it}$ = firm i's total accruals in year t;
$EBEI_{it}$ = firm i's income before extraordinary items (*Compustat* #123) in year t;
CFO_{it} = firm i's cash flows from operations (*Compustat* #308) in year t;
$EIDO_{it}$ = firm i's extraordinary items and discontinued operations included in CFO_{it} (*Compustat* #124) in year t.

I then estimate discretionary accruals based on the modified-Jones model.

$$TAcc_{it} = \delta_0 + \delta_1(1/Assets_{i,t-1}) + \delta_2(\Delta Sales_{it} - \Delta AR_{it}) + \delta_3 PPE_{it} + \nu_{it} \ldots\ldots\ldots(2)$$

where: $Assets_{i,t-1}$ = firm i's total assets (*Compustat* #6) in year *t-1*;
$\Delta Sales_{it}$ = change in firm i's sales (*Compustat* #12) from year *t-1* to t;
ΔAR_{it} = change in firm i's accounts receivable from operating activities (*Compustat* #302) from year *t-1* to t;
PPE_{it} = firm i's gross property, plant, and equipment (*Compustat* #7) in year t.

I include ΔAR_{it} in the estimation since I have no prior knowledge to identify non-earnings management firms and earnings management firms (e.g., Kothari et al., 2005). In addition, I exclude all firm-year observations where there are fewer than 6 observations in any two digit SICE code in any given year.

I scale all variables by beginning-of-year total assets.

I define the normal accrual ($NA^{MJ}{}_{it}$) and discretionary accrual ($DA^{MJ}{}_{it}$) metrics as:

$$NA^{MJ}{}_{it} = \hat{\delta}_0 + \hat{\delta}_1(1/Assets_{i,t-1}) + \hat{\delta}_2(\Delta Sales_{it} - \Delta AR_{it}) + \hat{\delta}_3 PPE_{it} \ldots\ldots\ldots(3)$$

$$DA^{MJ}{}_{it} = TAcc_{it} - NA^{MJ}{}_{it} \ldots\ldots\ldots(4)$$

Finally, for each year, I partition the sample into deciles by ranking firms within the two-digit SIC industries by the current year's return on assets (ROA_{it}), which is defined as net income before extraordinary items (Compustat #18) divided by beginning-of-year total assets. DA^{PMMJ} is the difference between firm i's year t modified Jones model accruals and the median value for its joint industry and ROA deciles, where the median calculation excludes firm i.

Exhibit 1

Earnings management and performance-expectation ratcheting (adapted from Leone and Rock (2002))

Scenario I: Manage earnings to secure jobs
Assume that S_t and S_{t+1} is the expected performance for period t and t+1, and A is actual reported performance. Suppose for Company R, performance expectations ratchet up asymmetrically by following the rules below:

$$S_{t+1} - S_t = \begin{cases} A_t - S_t, if\ A_t > S_t \\ 0.5 \times (A_t - S_t), if\ A_t <= S_t \end{cases} \quad \text{.....(i)}$$

For Company F, the performance expectation is unaffected by previous reported performance: $S_{t+1} = S_t$.

Suppose there is a temporary drop in the cost of materials for products manufactured by these two companies, and the drop leads to a transitory earnings increase by $100. The manager can either report earnings of $1,100 or intentionally lower earnings by $100 at a cost of $20 by using accruals or real activities.

	Company R					Company F			
Report $1100 without earnings management in Period (t=0)									
t	A	S	A-S	Meet/Fail	t	A	S	A-S	Meet/Fail
0	1100	1000	100	Meet	0	1100	1000	100	Meet
1	1000	1100	-100	Fail	1	1000	1000	0	Meet
2	1000	1050	-50	Fail	2	1000	1000	0	Meet
3	1000	1025[a]	-25	Fail	3	1000	1000	0	Meet
4	1000	1012.5	-12.5	Fail	4	1000	1000	0	Meet
Report $1000 with earnings management in Period (t=0)									
t	A	S	A-S	Meet/Fail	t	A	S	A-S	Meet/Fail
0	1000	1000	0	Meet	0	1000	1000	0	Meet
1	1080	1000	80	Meet	1	1080	1000	80	Meet
2	1000	1080	-80	Fail	2	1000	1000	0	Meet
3	1000	1040	-40	Fail	3	1000	1000	0	Meet
4	1000	1020	-20	Fail	4	1000	1000	0	Meet

a. 1025=1050+ 0.5×(-50) according to Eq. (i)

Scenario II: Bonus rewards without discretionary bonuses

Continuing Scenario I, suppose the bonus pay is set to be 20% of the difference between actual reported performance and performance expectation, which is the same as the performance standard in the contact. The discount rate for managers is 10%

Company R

Report $1100 without earnings management in Period 0

t	A	S	A-S	Meet/Fail	Payout	Present Value
0	1100	1000	100	Meet	$20	$20
1	1000	1100	-100	Fail	-20[b]	-18.18[c]
2	1000	1050	-50	Fail	-10	-8.26
3	1000	1025	-25	Fail	-5	-3.76
4	1000	1012.5	-12.5	Fail	-2.5	-1.71
Total						-$11.91

Report $1000 with earnings management in Period 0

t	A	S	A-S	Meet/Fail	Payout	Present Value
0	1000	1000	0	Meet	0	0
1	1080	1000	80	Meet	16	14.55
2	1000	1080	-80	Fail	-16	-13.22
3	1000	1040	-40	Fail	-8	-6.01
4	1000	1020	-20	Fail	-4	-2.73
Total						-$7.42

b. -20 = [(A-S)|T=2]×20% = (-100)×20%
c. -18.18=Payout/(1+discount rate)^T = -20/(1+0.1)

Company F

Report $1100 without earnings management in Period 0

t	A	S	A-S	Meet/Fail	Payout	Present Value
0	1100	1000	100	Meet	$20	$20
1	1000	1000	0	Meet	0	0
2	1000	1000	0	Meet	0	0
3	1000	1000	0	Meet	0	0
4	1000	1000	0	Meet	0	0
Total						$20

Report $1000 with earnings management in Period 0

t	A	S	A-S	Meet/Fail	Payout	Present Value
0	1000	1000	0	Meet	0	0
1	1080	1000	80	Meet	$16	$14.55
2	1000	1000	0	Meet	0	0
3	1000	1000	0	Meet	0	0
4	1000	1000	0	Meet	0	0
Total						$14.55

Scenario III: Bonus rewards with discretionary pay for meeting/beating performance expectation

Continuing Scenario II, suppose managers will be rewarded $5 for meeting or beating performance expectation;

Company R

Report $1100 without earnings management in Period 0

t	A	S	A-S	Meet/Fail	Payout	Present Value
0	1100	1000	100	Meet	$25	$25
1	1000	1100	-100	Fail	-20	-18.18
2	1000	1050	-50	Fail	-10	-8.26
3	1000	1025	-25	Fail	-5	-3.76
4	1000	1012.5	-12.5	Fail	-2.5	-1.71
Total						-$6.91

Report $1000 with earnings management in Period 0

t	A	S	A-S	Meet/Fail	Payout	Present Value
0	1000	1000	0	Meet	$5	$5
1	1080	1000	80	Meet	21[d]	19.09
2	1000	1080	-80	Fail	-16	-13.22
3	1000	1040	-40	Fail	-8	-6.01
4	1000	1020	-20	Fail	-4	-2.73
Total						$2.13

d. 21= (A-S) ×20%+5(if meet) = 80×20%+5.

References

Ahmed, A. S., and S. Duellman. 2007. Accounting conservatism and board of director characteristics: An empirical analysis. *Journal of Accounting & Economics* 43 (2-3):411-437.

Arya, A., J. Glover, and S. Sunder. 1998. Earnings Management and the Revelation Principle. *Review of Accounting Studies* 3 (1):7-34.

Baber, W. R., S. H. Kang, and K. R. Kumar. 1999. The explanatory power of earnings levels vs. earnings changes in the context of executive compensation. *Accounting Review* 74 (4):459-472.

Baker, T., D. Collins, and A. Reitenga. 2003. Stock Option Compensation and Earnings Management Incentives. *Journal of Accounting, Auditing & Finance* 18 (4):557-582.

Balsam, S., L. H. Chen, and S. Sankaraguruswamy. 2003. Earnings Management Prior to Stock Option Grants: SSRN.

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

Beaver, W. H., and S. G. Ryan. 2005. Conditional and unconditional conservatism: Concepts and modeling. *Review of Accounting Studies* 10 (2-3):269-309.

Beekes, W., P. Pope, and S. Young. 2004. The link between earnings timeliness, earnings conservatism and board composition: Evidence from the UK. *Corporate Governance-an International Review* 12 (1):47-59.

Bergstresser, D., and T. Philippon. 2006. CEO incentives and earnings management. *Journal of Financial Economics* 80 (3):511-529.

Bowen, R. M., S. Rajgopal, and M. Venkatachalam. 2008. Accounting Discretion, Corporate Governance and Firm Performance. *Contemporary Accounting Research* Forthcoming.

Brown, L. D., R. L. Hagerman, P. A. Griffin, and M. E. Zmijewski. 1987. Security Analyst Superiority Relative to Univariate Time-Series Models in Forecasting Quarterly Earnings. *Journal of Accounting & Economics* 9 (1):61-87.

Bruns, W., and K. Merchant. 1990. The dangerous morality of managing earnings. *Management Accounting* 72:22-25.

Burns, N., and S. Kedia. 2006. The impact of performance-based compensation on misreporting. *Journal of Financial Economics* 79 (1):35-67.

Cheng, Q., and T. A. Warfield. 2005. Equity incentives and earnings management. *The Accounting Review* 80 (2):441-476.

Chow, C. W., J. C. Cooper, and K. Haddad. 1991. The Effects of Pay Schemes and Ratchets on Budgetary Slack and Performance - a Multiperiod Experiment. *Accounting Organizations and Society* 16 (1):47-60.

Coles, J. L., N. D. Daniel, and L. Naveen. 2008. Boards: Does one size fit all? *Journal of Financial Economics* 87 (2):329-356.

Core, J. E., W. R. Guay, and T. O. Rusticus. 2006. Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations. *Journal of Finance* 61 (2):655-687.

Cotter, J., I. Tuna, and P. D. Wysocki. 2006. Expectations management and beatable targets: How do analysts react to explicit earnings guidance? *Contemporary Accounting Research* 23 (3):593-624.
Cremers, K. J. M., and V. B. Nair. 2005. Governance Mechanisms and Equity Prices. *Journal of Finance* 60 (6):2859-2894.
Das, S., P. K. Shroff, and H. Zhang. 2007. Quarterly Earnings Patterns and Earnings Management: SSRN.
Dechow, P. M., and I. D. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *Accounting Review* 77:35-59.
Dechow, P. M., and C. M. Schrand. 2004. *Earnings Quality*: The Research Foundation of CPA Institute.
DeFond, M. L., and C. W. Park. 1997. Smoothing income in anticipation of future earnings. *Journal of Accounting & Economics* 23 (2):115-139.
Degeorge, F., J. Patel, and R. Zeckhauser. 1999. Earnings management to exceed thresholds. *Journal of Business* 72 (1):1-33.
Demski, J. S., and H. Frimor. 1999. Performance measure garbling under renegotiation in multiperiod agencies. *Journal of Accounting Research* 37:187-214.
Dlugosz, J., R. Fahlenbrach, P. Gompers, and A. Metrick. 2006. Large blocks of stock: Prevalence, size, and measurement. *Journal of Corporate Finance* 12 (3):594-618.
Fan, J. P. H., and T. J. Wong. 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of Accounting & Economics* 33 (3):401-425.
Farrell, K. A., and D. A. Whidbee. 2003. Impact of firm performance expectations on CEO turnover and replacement decisions. *Journal of Accounting & Economics* 36 (1-3):165-196.
Feltham, G., R. Indjejikian, and D. Nanda. 2006. Dynamic incentives and dual-purpose accounting *Journal of Accounting & Economics* 42 (3):417-437
Fields, T. D., T. Z. Lys, and L. Vincent. 2001. Empirical research on accounting choice. *Journal of Accounting & Economics* 31 (1-3):255-307.
Gaver, J. J., and K. M. Gaver. 1998. The relation between nonrecurring accounting transactions and CEO cash compensation. *Accounting Review* 73 (2):235-253.
Gillan, S. L. 2006. Recent Developments in Corporate Governance: An Overview. *Journal of Corporate Finance* 12 (3):381-402.
Gillan, S. L., J. C. Hartzell, and L. T. Starks. 2003. Explaining Corporate Governance: Boards, Bylaws, and Charter Provisions: Weinberg Center for Corporate Governance.
Gillan, S. L., and L. T. Starks. 2003. Corporate Governance, Corporate Ownership, and the Role of Institutional Investors: A Global Perspective. *Journal of Applied Finance* 13 (2):4-22.
Goel, A. M., and A. V. Thakor. 2003. Why do firms smooth earnings? *Journal of Business* 76 (1):151-192.
Gompers, P., J. Ishii, and A. Metrick. 2003. Corporate Governance and Equity Prices. *Quarterly Journal of Economics* 118 (1):107-155.
Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting & Economics* 40 (1-3):3-73.

Grossman, S. J., and O. D. Hart. 1980. Takeover bids, the free-rider problem, and the theory of the corporation. *Bell Journal of Economics* 11 (1):42-64.
Healy, P. M. 1985. The Effect of Bonus Schemes on Accounting Decisions. *Journal of Accounting & Economics* 7 (1-3):85-107.
Healy, P. M., and K. G. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting & Economics* 31 (1-3):405-440.
Holthausen, R. W., D. F. Larcker, and R. G. Sloan. 1995. Annual bonus schemes and the manipulation of earnings. *Journal of Accounting and Economics* 19 (1):29-74.
Hribar, P., and D. W. Collins. 2002. Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research* 40 (1):105-134.
Indjejikian, R., and D. Nanda. 1999. Dynamic incentives and responsibility accounting. *Journal of Accounting & Economics* 27 (2):177-201.
Indjejikian, R. J., and D. Nanda. 2002. Executive target bonuses and what they imply about performance standards. *Accounting Review* 77 (4):793-819.
Jeitschko, T. D., and L. J. Mirman. 2002. Information and experimentation in short-term contracting. *Economic Theory* 19 (2):311-331.
Jeitschko, T. D., L. J. Mirman, and E. Salgueiro. 2002. The simple analytics of information and experimentation in dynamic agency. *Economic Theory* 19 (3):549-570.
Jensen, M. C. 1993. The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *The Journal of Finance* 48 (3):831-880.
———. 2003. Paying People to Lie: the Truth about the Budgeting Process. *European Financial Management* 9 (3):379-406.
Kanemoto, Y., and W. B. Macleod. 1992. The Ratchet Effect and the Market for Secondhand Workers. *Journal of Labor Economics* 10 (1):85-98.
Karuna, C. 2008. Industrial product market competition and corporate governance: University of California, Irvine.
Kothari, S. P. 2001. Capital markets research in accounting. *Journal of Accounting & Economics* 31 (1-3):105-231.
Kothari, S. P., A. J. Leone, and C. E. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39 (1):163-197.
Kumar, P., and K. Sivaramakrishnan. 2008. Who Monitors the Monitor? The Effect of Board Independence on Executive Compensation and Firm Value. *Rev. Financ. Stud.* 21 (3):1371-1401.
Laffont, J.-J., and J. Tirole. 1988. The Dynamics of Incentive Contracts. *Econometrica* 56 (5):1153-1175.
———. 1993. *A theory of incentives in procurement and regulation.* Cambridge, Mass.: MIT Press.
LaPorta, R. 1996. Expectations and the cross-section of stock returns. *Journal of Finance* 51 (5):1715-1742.
Lee, C. W. J., L. Y. Li, and H. Yue. 2006. Performance, growth and earnings management. *Review of Accounting Studies* 11 (2-3):305-334.
Lee, T., E. Plummer, and R. Koss. 2007. Budget adjustments in response to spending variances: Evidence of ratcheting of local government expenditures. *Journal of Management Accounting Research.*

Leone, A. J., and S. Rock. 2002. Empirical tests of budget ratcheting and its effect on managers' discretionary accrual choices. *Journal of Accounting & Economics* 33 (1):43-67.

Li, H., M. P. Pincus, and S. O. Rego. 2007. Market reaction to events surrounding the Sarbanes-Oxley Act of 2002 and earnings management. *Journal of Law & Economics* Forthcoming.

Matsumoto, D. A. 2002. Management's incentives to avoid negative earnings surprises. *Accounting Review* 77 (3):483-514.

Matsunaga, S. R., and C. W. Park. 2001. The effect of missing a quarterly earnings benchmark on the CEO's annual bonus. *Accounting Review* 76 (3):313-332.

McNichols, M., and G. P. Wilson. 1988. Evidence of Earnings Management from the Provision for Bad Debts. *Journal of Accounting Research* 26:1-31.

Milgrom, P. R., and J. Roberts. 1992. *Economics, organization and management.* Englewood Cliffs, N.J.: Prentice-Hall.

Murphy, K. J. 2001. Performance standards in incentive contracts. *Journal of Accounting & Economics* 30 (3):245-278.

Nan, L. 2007. The Agency Problems of Hedging and Earnings Management. *Contemporary Accounting Research* Forthcoming.

O'Brien, P. C. 1988. Analysts Forecasts as Earnings Expectations. *Journal of Accounting & Economics* 10 (1):53-83.

Oyer, P. 1998. Fiscal year ends and nonlinear incentive contracts: The effect on business seasonality. *Quarterly Journal of Economics* 113 (1):149-185.

Peng, L., and A. Roell. 2008. Manipulation and equity-based compensation. *American Economic Review* 98 (2):285-290.

Phillips, J., M. Pincus, and S. O. Rego. 2003. Earnings management: New evidence based on deferred tax expense. *Accounting Review* 78 (2):491-521.

Puffer, S. M., and J. B. Weintrop. 1991. Corporate Performance and Ceo Turnover - the Role of Performance Expectations. *Administrative Science Quarterly* 36 (1):1-19.

Richardson, S., S. H. Teoh, and P. D. Wysocki. 2004. The walk-down to beatable analyst forecasts: The role of equity issuance and insider trading incentives. *Contemporary Accounting Research* 21 (4):885-924.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting & Economics* 42 (3):335-370

Roychowdhury, S., and R. L. Watts. 2007. Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting. *Journal of Accounting and Economics* 44 (1-2):2-31.

Ryan, J. H. E., and I. I. I. R. A. Wiggins. 2004. Who is in whose pocket? Director compensation, board independence, and barriers to effective monitoring. *Journal of Financial Economics* 73 (3):497-524.

Ryan, S. G. 2006. Identifying conditional conservatism. *European Accounting Review* 15 (4):511-525.

Sloan, R. G. 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? *The Accounting Review* 71 (3):289-315.

Teoh, S. H., I. Welch, and T. J. Wong. 1998a. Earnings management and the long-run market performance of initial public offerings. *Journal of Finance* 53 (6):1935-1974.

———. 1998b. Earnings management and the underperformance of seasoned equity offerings. *Journal of Financial Economics* 50 (1):63-99.
Watts, R. L. 2003a. Conservatism in accounting Part I: explanations and implications. 17 (3):207(215).
———. 2003b. Conservatism in accounting Part II: evidence and research opportunities. 17 (4):287(215).
Weisbach, M. S. 1988. Outside Directors and Ceo Turnover. *Journal of Financial Economics* 20 (1-2):431-460.
Weitzman, M. L. 1980. The Ratchet Principle and Performance Incentives. *Bell Journal of Economics* 11 (1):302-308.
Yermack, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40 (2):185-211.
Zou, L. 1991. The Target-Incentive System Vs the Price-Incentive System under Adverse Selection and the Ratchet Effect. *Journal of Public Economics* 46 (1):51-89.

Table 1: Sample Selection (1990-2002)

Observations from the intersection of IBES and Compustat	34,158
After dropping observations with less than 3 analyst following	26,265
Observations with the restriction on firms with 6 or more annual observations	16,248
Observations after truncation of most extreme 1 percent of UE	15,318
Observations combined with the IRRC Anti-takeover data (Chapter 2 Sample)	9,415
or Observations with data necessary to estimate abnormal accruals (DA^{PMMJ}) (Chapter 3 Sample)	9,171

Table 2: Summary statistics (Chapter 2)

Panel A: Descriptive Statistics

Variable	N	Mean	Median	Std.	Q1	Q3
UE	9,415	-0.006	-0.001	0.022	-0.011	0.003
Asset_Growth	9,415	0.108	0.070	0.200	0.004	0.163
Sales_Growth	9,414	0.092	0.070	0.190	-0.001	0.158
MB	9,289	3.065	2.202	2.772	1.522	3.461
Total Assets (in millions)	9,415	11,514	2,047	45,022	793	7,013
Sales (in millions)	9,415	5,086	1,648	12,178	716	4,657
G_Index	9,415	9.308	9	2.784	7	11
ATI	9,415	1.768	2	0.886	1	2
BLOCK	9,414	13%	11%	0.125	0%	20%
SEPARATE_CHAIR	6,060	31%	0%	0.46	0	100%
BOARD_INDEP	6,060	74%	100%	0.44	0	100%
BOARD_SIZE	6,060	10.3	10	3.201	8	12
ALL_BLOCK	4,268	21%	19%	0.163	8%	31%
OUT_BLOCK	4,268	15%	12%	0.143	5%	23%

Definitions: UE= actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; Asset_Growth = expected asset growth [(Compustat $\#6_{t+1}$- Compustat $\#6_t$)/ Compustat $\#6_t$]; Sales_Growth = expected sales growth [(Compustat $\#12_{t+1}$- Compustat $\#12_t$)/ Compustat $\#12_t$]; MB = market to book ratio [(Compustat #199 × Compustat #25)/Compustat #60]

Total Assets = Total Assets, Compustat #6; Sales = Sales, Compustat #12; G_Index = corporate governance index created by Gompers et al. (2003) using the IRRC data; ATI=alternative takeover vulnerability index, which incorporates three takeover provisions (blank check preferred, staggered boards, and restrictions on calling special meetings or acting by written consent); BLOCK= the fraction of outstanding shares owned by institutional blockholders (Spectrum data); a blockholder is defined as a shareholder who holds more than 5 percent of outstanding shares; ALL_BLOCK= the percentage of outstanding shares held by all blockholders for that firm-year (data are retrieved from Dlugosz et al. 2006); OUT_BLOCK=the percentage of outstanding shares held by all outside blockholders (data are retrieved from Dlugosz et al. 2006); BOARD_SIZE=the number of members of the board of directors as of the annual meeting date during each fiscal year (from the IRRC); SEPARATE_CHAIR=1, if the chief executive officer (CEO) and chairperson of the board (COB) are held by different people; 0, otherwise (from the IRRC); BOARD_INDEP=1, if the fraction of directors who are classified as independent is bigger than 50%; 0 otherwise (from the IRRC).

Table 2 -Continued

Panel B: Correlation Statistics

	UE	Asset_Growth	Sales_Growth	MB	G_Index	ATI	BLOCK	BOARD_SIZE	SEPARATE_CHAIR
Asset_Growth	0.181								
Sales_Growth	0.154	0.604							
MB	0.151	0.213	0.153						
G_Index	0.043	-0.056	-0.059	-0.057					
ATI	0.035	-0.031	-0.029	-0.013	0.660				
BLOCK	-0.061	-0.014	0.005	-0.062	-0.053	-0.024			
BOARD_SIZE	0.072	-0.042	-0.047	0.005	0.186	0.115	-0.230		
SEPARATE_CHAIR	-0.023	0.014	0.017	-0.003	-0.109	-0.054	0.019	-0.059	
BOARD_INDEP	0.013	-0.078	-0.091	-0.031	0.202	0.140	-0.007	0.111	-0.132

The number of observations for each correlation ranges from 4,268 to 9,415, which can be inferred from Panel A.

Definitions:

UE= actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share;

Asset_Growth = expected asset growth [(Compustat #6_{t+1}- Compustat #6_t)/ Compustat #6_t];

Sales_Growth = expected sales growth [(Compustat #12_{t+1}- Compustat #12_t)/ Compustat #12_t];

MB = market to book ratio [(Compustat #199 × Compustat #25)/Compustat #60]

G_Index = Corporate governance index created by Gompers et al. (2003) using the IRRC data.

ATI=Alternative takeover vulnerability index, which incorporates three takeover provisions (blank check preferred, staggered boards, and restrictions on calling special meetings or acting by written consent);

BLOCK=the fraction of outstanding shares owned by institutional blockholders (Spectrum data); a blockholder is defined as a shareholder who holds more than 5 percent of outstanding shares;

ALL_BLOCK= the percentage of outstanding shares held by all blockholders for that firm-year (data are retrieved from Dlugosz et al. 2006);

OUT_BLOCK=the percentage of outstanding shares held by all outside blockholders (data are retrieved from Dlugosz et al. 2006);

BOARD_SIZE= the number of members of the board of directors as of the annual meeting date during each fiscal year (from the IRRC);

SEPARATE_CHAIR=1, if the chief executive officer (CEO) and chairperson of the board (COB) are held by different people; 0, otherwise (from the IRRC);

BOARD_INDEP=1, if the fraction of directors who are classified as independent is bigger than 50%; 0 otherwise (from the IRRC).

Table 3: Prevalence of performance-expectation ratcheting

$$\Delta S_{i,t+1} = \alpha_i + \alpha_t + \beta_0 D_{it} + \beta_1 UE_{it} + \beta_2 D_{it} \times UE_{it} + \gamma_1 Asset\_Growth_{i,t+1} + \gamma_2 Sales\_Growth_{i,t+1} + \gamma_3 MB_{i,t} + \varepsilon_{i,t} \quad \text{.....(2-1)}$$

Variable	Pred. Sign	(1)	(2)
UE	(+)	1.332	1.294
		(56.82)***	(56.73)***
D×UE	(-)	-0.456	-0.415
		(-16.51)***	(-15.44)***
Assets_Growth		0.010	-0.005
		(13.57)***	(-5.99)***
Sales_Growth			0.028
			(30.56)***
MB			0.002
			(22.02)***
D		-0.001	0.000
		(-2.04)**	(0.33)
Firm & year fixed effect		Included	Included
# of Obs.		8,959	8,861
-2 Res Log Likelihood		-44,833	-44,951

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated.

Variable Definitions:

UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share;

D_{it} = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$;

Asset_Growth = expected asset growth [(Compustat $\#6_{t+1}$- Compustat $\#6_t$)/ Compustat $\#6_t$].

Sales_Growth = expected sales growth [(Compustat $\#12_{t+1}$- Compustat $\#12_t$)/ Compustat $\#12_t$].

MB = market to book ratio [(Compustat #199 × Compustat #25)/Compustat #60]

Table 4: Association between shareholder rights and ratcheting

$$\Delta S_{i,t} = \alpha_t + \alpha_i + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 G\_Index \times UE + \beta_4 G\_Index \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 G\_Index + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{.....(2-2)}$$

$$\Delta S_{i,t} = \alpha_t + \alpha_i + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 ATI \times UE + \beta_4 ATI \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 ATI + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t}$$

Variable	Pred. Sign	(1)	(2)	Variable	(3)	(4)
UE	(+)	2.148	2.010	UE	1.527	1.414
		(29.03)***	(28.45)***		(34.31)***	(32.91)***
D×UE	(-)	-1.377	-1.181	D×UE	-0.680	-0.512
		(-14.87)***	(-13.34)***		(-12.47)***	(-9.68)***
G_Index×UE		-0.089	-0.077	ATI×UE	-0.131	-0.075
		(-11.5)***	(-10.51)***		(-5.63)***	(-3.37)***
G_Index ×D×UE		0.099	0.083	ATI×D×UE	0.144	0.062
		(10.16)***	(8.86)***		(5.00)***	(2.26)**
G_Index		0.000	0.000	ATI	0.001	0.000
		(-0.06)	(-0.37)		(1.10)	(0.91)
Assets_Growth		0.010	-0.005	Assets_Growth	0.010	-0.005
		(13.55)***	(-6.09)***		(13.37)***	(-5.87)***
Sales_Growth			0.028	Sales_Growth		0.028
			(30.03)***			(30.34)***
MB			0.002	MB		0.002
			(22.1)***			(22.23)***
D		-0.001	0.000	D	-0.001	0.000
		(-2.43)**	(0.08)		(-2.65)***	(0.19)
Firm & year fixed effect		Included	Included		Included	Included
# of Obs.		8,963	8,854		8,955	8,854
-2 Res Log Likelihood		-44735.3	-44939.7		-44823.3	-44987.9

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; D_{it} = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$; Asset_Growth = expected asset growth; Sales_Growth = expected sales growth; MB = market to book ratio; G_Index = corporate governance index created by Gompers et al. (2003) using the IRRC data; ATI=alternative takeover vulnerability index, which incorporates three takeover provisions (blank check preferred, staggered boards, and restrictions on calling special meetings or acting by written consent).

Table 5: Association between ownership concentration and ratcheting

Panel A: Large institutional holding

$$\Delta S_{i,t} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 BLOCK \times UE + \beta_4 BLOCK \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 BLOCK + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{..... (2-3)}$$

Variable	Predicted Sign	(1)	(2)
UE	(+)	1.338	1.285
		(41.38)***	(41.01)***
D×UE	(-)	-0.450	-0.375
		(-11.42)***	(-9.79)***
BLOCK×UE	(+)	-0.010	0.052
		(-0.05)	(0.30)
BLOCK×D×UE		-0.075	-0.228
		(-0.34)	(-1.09)
BLOCK		-0.002	0.000
		-0.9	0.07
Assets_Growth		0.010	-0.005
		(13.26)***	(-5.97)***
Sales_Growth			0.028
			(30.39)***
MB			0.002
			(22.39)***
D		-0.001	0.000
		(-1.88)*	(0.48)
Firm & Year fixed effect		Included	Included
# of Obs.		8,966	8,845
-2 Res Log Likelihood		-44,843.6	-44,693.2

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for detailed variable descriptions.

Variable Definitions: UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; D_{it} = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$; Asset_Growth = expected asset growth [(Compustat $\#6_{t+1}$- Compustat $\#6_t$)/ Compustat $\#6_t$]; Sales_Growth = expected sales growth [(Compustat $\#12_{t+1}$- Compustat $\#12_t$)/ Compustat $\#12_t$]; MB = market to book ratio [(Compustat #199 × Compustat #25)/Compustat #60];
BLOCK=the fraction of outstanding shares owned by institutional blockholders (Spectrum data); a blockholder is defined as a shareholder who holds more than 5 percent of outstanding shares;

Table 5-Continued

Panel B: Large block holders

$$\Delta S_{i,t} = \alpha_t + \alpha_i + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 ALL\_BLOCK \times UE + \beta_4 ALL\_BLOCK \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 ALL\_BLOCK + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{..... (2-3)}$$

$$\Delta S_{i,t} = \alpha_t + \alpha_i + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 OUT\_BLOCK \times UE + \beta_4 OUT\_BLOCK \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 OUT\_BLOCK + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{..... (2-3)}$$

Variable	Pred. Sign	(1)	(2)	Variable	Pred. Sign	(3)	(4)
UE	(+)	1.336	1.234	UE	(+)	1.305	1.229
		(20.16)***	(18.47)***			(21.98)***	(20.77)***
D×UE	(-)	-0.305	-0.249	D×UE	(-)	-0.3034	-0.262
		(-3.75)***	(-3.04)***			(-4.18)***	(-3.63)***
ALL_BLOCK ×UE	(+)	0.000	0.002	OUT_BLOCK ×UE	(+)	0.002	0.003
		(0.03)	(0.84)			(0.7)	(1.28)
ALL_BLOCK× D×UE		-0.004	-0.004	OUT_BLOCK× D×UE		-0.005	-0.005
		(-1.33)	(-1.34)			(-1.61)	(-1.59)
ALL_BLOCK		0.000	0.000	OUT_BLOCK		0.000	0.000
		(1.22)	(1.09)			(1.76)	(1.47)
Assets_Growth		0.010	-0.006	Assets_Growth		0.010	-0.006
		(8.32)***	(-4.73)***			(8.3)***	(-4.67)***
Sales_Growth			0.032	Sales_Growth			0.032
			(20.44)***				(20.47)***
MB			0.002	MB			0.002
			(13.81)***				(13.91)***
D		-0.001	0.000	D		-0.001	0.000
		(-1.97)**	-0.12			(-1.92)*	(-0.13)
Firm & year fixed effect		Included	Included	Firm & year fixed effect		Included	Included
# of Obs.		4,061	4,016	# of Obs.		4,067	4,018
-2 Res Log Likelihood		-16319.3	-16230.9	-2 Res Log Likelihood		-16292.1	-16226.9

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated; please see Appendix C for detailed variable descriptions; **Variable Definitions:** UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; $D_{i,t}$ = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$; Asset_Growth = expected asset growth; Sales_Growth = expected sales growth; MB = market to book ratio; ALL_BLOCK=the percentage of outstanding shares held by all blockholders for that firm-year; OUT_BLOCK= the percentage of outstanding shares held by all outside blockholders.

Table 6: Board structure and ratcheting

$$\Delta S_{i,t} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 BOARD\_MEASURE \times UE + \beta_4 BOARD\_MEASURE \times D \times UE + \gamma_1 Asset\_Growth + \gamma_2 BOARD\_MEASURE + \gamma_3 Sales\_Growth + \gamma_4 MB + \varepsilon_{i,t} \quad \text{..... (2-4)}$$

Panel A: CEO duality and ratcheting

Variable	Pred. Sign	(1)	(2)
UE	(+)	1.305	1.214
		(32.71)***	(31.37)***
D×UE	(-)	-0.357	-0.263
		(-7.44)***	(-5.66)***
SEPARATE_CHAIR×UE	(+)	-0.025	0.082
		(-0.42)	(1.43)
SEPARATE_CHAIR×D×UE		0.072	-0.002
		(0.99)	(-0.03)
SEPARATE_CHAIR		0.000	0.000
		(0.6)	(0.26)
Assets_Growth		0.010	-0.006
		(10.34)***	(-6.01)***
Sales_Growth			0.032
			(25.31)***
MB			0.002
			(16.51)***
D		-0.002	0.000
		(-2.88)***	(-0.57)
Firm & year fixed effect		Included	Included
# of Obs.		5,600	5,530
-2 Res Log Likelihood		-23,668.6	-23,637.6

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated; please see Appendix C for detailed variable descriptions. **Variable Definitions:** UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; $D_{i,t}$ = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$; Asset_Growth = expected asset growth; Sales_Growth = expected sales growth; MB = market to book ratio; SEPARATE_CHAIR=1, if the chief executive officer (CEO) and chairperson of the board (COB) are held by different people; 0, otherwise.

Table 6- Continued
Panel B: Board independence and ratcheting

Variable	Pred. Sign	(1)	(2)
UE	(+)	1.553	1.395
		(17.11)***	(16.12)***
D×UE	(-)	-0.478	-0.327
		(-4.21)***	(-3.01)***
BOARD_INDEP×UE	(+)	-0.261	-0.191
		(-2.45)	(-1.91)
BOARD_INDEP×D×UE		0.170	0.087
		(1.26)	(0.68)
BOARD_INDEP		0.002	0.001
		(0.92)	(0.82)
Assets_Growth		0.022	-0.006
		(11.96)***	(-3.1)***
Sales_Growth			0.054
			(24.05)***
MB			0.003
			(12.62)***
D		-0.001	0.000
		(-1.02)	(0.41)
Firm & year fixed effect		Included	Included
# of Obs.		5,880	5,792
-2 Res Log Likelihood		-18,535.2	-18,910.5

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for detailed variable descriptions; **Variable Definitions:** UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; D_{it} = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$; Asset_Growth = expected asset growth; Sales_Growth = expected sales growth; MB = market to book ratio; BOARD_INDEP=1, if the fraction of directors who are classified as independent is bigger than 50%; 0 otherwise.

Table 6- Continued
Panel C: Board size and ratcheting

Variable	Pred. Sign	(1)	(2)
UE	(+)	1.854	1.505
		(9.54)***	(8.23)***
D×UE	(-)	-0.976	-0.661
		(-4.00)***	(-2.88)***
BOARD_SIZE×UE	(-)	-0.055	-0.026
		(-2.52)**	(-1.3)
BOARD_SIZE×D×UE		0.069	0.044
		(2.59)**	(1.72)*
BOARD_SIZE		0.000	0.000
		(0.11)	(1.18)
Assets_Growth		0.021	-0.006
		(11.83)***	(-3.06)***
Sales_Growth			0.054
			(24.00)***
MB			0.003
			(12.55)***
D		-0.001	0.001
		(-1.05)	(0.52)
Firm & year fixed effect		Included	Included
# of Obs.		5,880	5,792
-2 Res Log Likelihood		-18,519.6	-18,893

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** UE_{it} = actual performance (EPS) (A_t) for period t - the expected performance per share (S_t) for period t; UE is deflated by the beginning assets per share; D_{it} = 1 if $A_t < S_t$ and 0 if $A_t \geq S_t$; Asset_Growth = expected asset growth; Sales_Growth = expected sales growth; MB = market to book ratio; BOARD_SIZE= the number of members of the board of directors as of the annual meeting date during each fiscal year.

Table 7: Including all three dimensions of corporate governance measures

$$\Delta S_{i,t} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \beta_3 G\_Index \times UE + \beta_4 BLOCK \times UE + \beta_5 SEPARATE\_CHAIR \times UE + \beta_6 BOARD\_INDEP \times UE + \beta_7 BOARD\_SIZE \times UE + \beta_8 G\_Index \times D \times UE + \beta_9 BLOCK \times D \times UE + \beta_{10} SEPARATE\_CHAIR \times D \times UE + \beta_{11} BOARD\_INDEP \times D \times UE + \beta_{12} BOARD\_SIZE \times D \times UE + \delta_1 G\_Index + \delta_2 BLOCK + \delta_3 SEPARATE\_CHAIR + \delta_4 BOARD\_INDEP + \delta_5 BOARD\_SIZE + \gamma_1 Asset\_Growth + \gamma_2 Sales\_Growth + \gamma_3 MB + \varepsilon_{i,t}$$

Variable	Predicted Sign	
G_Index×UE	(-)	-0.051
		(-4.16)***
BLOCK×UE	(+)	0.222
		(0.85)
SEPARATE_CHAIR×UE	(+)	-0.062
		(-1.01)
BOARD_INDEP×UE	(+)	0.042
		(0.69)
BOARD_SIZE×UE	(-)	-0.017
		(-1.36)
G_Index×D×UE		0.052
		(3.34)***
BLOCK×D×UE		-0.269
		(-0.85)
SEPARATE_CHAIR×D×UE		0.150
		(2.00)**
BOARD_INDEP×D×UE		-0.210
		(-2.69)***
BOARD_SIZE×D×UE		0.020
		(1.29)
Firm and year fixed effect		Included
# of Obs.		5,220

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. The regression includes all the variables shown in the model above, but the table only keeps the interaction terms with corporate governance measures for brevity. Please see Appendix C for detailed variable descriptions.

Table 8: Summary statistics (Chapter 3)

Panel A: Descriptive Statistics

Variable	N	Mean	Median	Std.	Q1	Q3
A	15,318	0.063	0.051	0.062	0.021	0.093
S	15,318	0.069	0.056	0.059	0.029	0.099
UE	15,318	-0.006	-0.001	0.022	-0.011	0.003
Total Assets (in millions)	15,318	7,733	1,549	20,085	492	5,400
Sales (in millions)	15,310	3,843	1,121	7,634	429	3,434
DA^{PMMJ}	9,167	-0.020	-0.013	0.135	-0.063	0.029
DTE	9,171	0.000	0.001	0.015	-0.005	0.008
MB	9,167	3.251	2.412	3.069	1.638	3.799
ROA	9,171	0.066	0.061	0.084	0.030	0.105
ΔCFO	9,171	0.017	0.012	0.075	-0.018	0.049

Panel B: Correlations (Pearson) among variables used for accruals management

	DA^{PMMJ}	DTE	MB	ROA
DTE	0.064 (<.0001)			
MB	-0.108 (<.0001)	-0.061 (<.0001)		
ROA	-0.012 (0.2437)	0.092 (<.0001)	0.318 (<.0001)	
ΔCFO	-0.262 (<.0001)	0.043 (<.0001)	0.151 (<.0001)	0.295 (<.0001)

Variable Definitions:

Please see Appendix C for detailed variable descriptions;

A = reported performance;

S = expected performance; consensus forecasts (median forecasts in I/B/E/S) nine-months prior to the end of fiscal years deflated by the beginning assets per share.

UE = actual performance (A_t) for period t - the expected performance (S_t) for period t; UE is deflated by the beginning assets per share.

DTE_{it} = Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets;

Total Assets =Total Assets;

Sales = Sales.

DA^{PMMJ} = Abnormal Accruals; see Appendix D for its estimation procedure;

ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6);

MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60);

MTB= Logarithm of MB;

SIZE= Logarithm of the Market Value of Equity (Compustat #199× Compustat #25);

ΔCFO= change in cash flows from continuing operations (annual Compustat #308-#124) from year t-1 to year t, scaled by total assets as of the beginning of year t;

Table 8 -Continued

Panel C: Correlations (Pearson) among variables for real activities management

	Abnormal _PROD	Abnormal _DISEXP	Abnormal _CFO	MTB	SIZE	DA^{PMMJ}
Abnormal_DISEXP	0.749					
	(<.0001)					
Abnormal_CFO	0.460	0.065				
	(<.0001)	(<.0001)				
MTB	0.349	0.233	0.321			
	(<.0001)	(<.0001)	(<.0001)			
SIZE	0.104	0.016	0.197	0.519		
	(<.0001)	(0.1468)	(<.0001)	(<.0001)		
DA^{PMMJ}	-0.039	-0.036	-0.084	-0.041	-0.028	
	(0.0005)	(0.0013)	(<.0001)	(0.0002)	(0.0119)	
ROA	0.332	0.095	0.462	0.431	0.212	0.001
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.9504)

Variable Definitions:
Please see Appendix C for detailed variable descriptions;
A = reported performance;
S = expected performance; consensus forecasts (median forecasts in I/B/E/S) nine-months prior to the end of fiscal years deflated by the beginning assets per share.
UE = actual performance (A_t) for period t - the expected performance (S_t) for period t; UE is deflated by the beginning assets per share.
DTE_{it} = Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets;
Total Assets =Total Assets;
Sales = Sales.
DA^{PMMJ} = Abnormal Accruals; see Appendix D for its estimation procedure;
ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6);
MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60);
MTB= Logarithm of MB;
SIZE= Logarithm of the Market Value of Equity (Compustat #199× Compustat #25);
ΔCFO= change in cash flows from continuing operations (annual Compustat #308-#124) from year t-1 to year t, scaled by total assets as of the beginning of year t;
Abnormal_CFO= Abnormal Cash Flows from operations (see Appendix C for details);
Abnormal_DISEXP= Abnormal Discretionary Expenses (see Appendix C for details);
Abnormal_PROD= Abnormal production costs (see Appendix C for details).

Table 9: Ratcheters versus Non-Ratcheters

Panel A: The sub-sample under ratcheting versus the sub-sample with little or no ratcheting

$$\Delta S_{i,t+1} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \gamma_1 Asset\_Growth + \varepsilon_{i,t}$$

Variable	Predicted Sign	RATCHETERS	NON-RATCHETERS
UE	(+)	1.384	0.358
		(46.54)***	(13.07)***
D×UE	(-)	-0.463	0.281
		(-13.22)***	(9.32)
Assets_Growth		0.014	0.004
		(20.32)***	(11.75)***
D		-0.004	-0.003
		(-5.16)***	(-14.38)***
Firm fixed effect		Included	Included
Year fixed effect		Included	Included
# of Obs.		5,864	8,785
-2 Res Log Likelihood		-25,442.0	-51,590.4

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for variable descriptions

Variable Definitions:

ΔS_{t+1}= Change in expected performance, S_{t+1}-S_t; S_t = The expected performance for period t; consensus forecasts (median forecasts in I/B/E/S) nine-months prior to the end of fiscal years deflated by the beginning assets per share; UE= The actual performance (A_t) for period t - the expected performance (S_t) for period t; UE is deflated by the beginning assets per share; $Asset\_Growth$= Expected asset growth; it is calculated as [(Compustat #6$_{t+1}$- Compustat #6$_t$)/ Compustat #6$_t$]; D_t =1 if $A_t < S_t$ and 0 if $A_t \geq S_t$.

Table 9-Continued

Panel B: Using Murphy (2001)'s sample

$$\Delta S_{i,t+1} = \alpha_i + \alpha_t + \beta_0 D + \beta_1 UE + \beta_2 D \times UE + \gamma_1 Asset\_Growth + \varepsilon_{i,t}$$

Variable	Predicted Sign	INTERNAL	EXTERNAL
UE	(+)	1.208	0.884
		(18.31)***	(6.19)***
D×UE	(-)	-0.311	-0.232
		(-3.96)***	(-1.36)
Assets_Growth		0.003	0.005
		(2.22)**	(1.62)
D		-0.001	-0.002
		(-0.76)	(-1.46)
Firm fixed effect		Included	Included
Year fixed effect		Included	Included
# of Obs.		886	246
-2 Res Log Likelihood		-4,918.5	-1,257.2

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for variable descriptions

Variable Definitions:

ΔS_{t+1}= Change in expected performance, S_{t+1}-S_t; S_t = The expected performance for period t; consensus forecasts (median forecasts in I/B/E/S) nine-months prior to the end of fiscal years deflated by the beginning assets per share; *UE*= The actual performance (A_t) for period t - the expected performance (S_t) for period t; UE is deflated by the beginning assets per share; *Asset_Growth*= Expected asset growth; it is calculated as [(Compustat #6_{t+1}- Compustat #6_t)/ Compustat #6_t]; D_t=1 if $A_t < S_t$ and 0 if $A_t \geq S_t$.

Table 10: Earnings management and ratcheting

Panel A: fourth quarter earnings management associated with ratcheting

$$Q4\_EARN\% = \alpha_t + \alpha_i + \beta_1 GoodYTD + \beta_2 GoodYTD \times RATCHETER + \beta_3 MTB + \varepsilon_{it} \quad \text{..... (3-2)}$$

Variable	Prediced Sign	
GoodYTD	(-)	-0.039 (-12.8)***
GoodYTD ×RATCHETER	(-)	-0.009 (-2.22)**
MTB	(+)	0.073 (26.09)***
Firm & year fixed effect		Included
# of Obs.		5,685
-2 Res Log Likelihood		-9,683

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for detailed variable descriptions.

Panel B: Accruals management associated with ratcheting

$$DTE_{it} = \alpha_t + \alpha_i + \lambda_1 MEET_{it} + \lambda_2 \text{MEET} \times \text{RATCHETER}_{it} + \lambda_3 \Delta CFO_{it} + \lambda_4 MTB_{it} + \lambda_5 ROA + \varepsilon_{it} \quad \text{..... (3-3)}$$

	Predicted Sign	(1)	(2)
MEET	(?)	0.149 (4.18)***	0.119 (3.38)***
MEET×RATCHETER	(-)	-0.177 (-3.6)***	-0.255 (-5.24)***
ΔCFO		0.4092 (2.67)***	-0.13 (-0.84)
MTB		0.1332 (4.99)***	-0.076 (-2.76)***
ROA			5.664 (25.53)***
Firm & year fixed effect		Included	Included
# of Obs.		8,612	8,629
-2 Res Log Likelihood		-45,527	-45,824

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions.

Table 10- Continued

Panel C: Real management associated with ratcheting

$$Y_{it} = \alpha_i + \alpha_t + \beta_1 MEET_{it} + \beta_2 MEET_{it} \times RATCHETER_i + \beta_3 SIZE_{it} + \beta_4 MTB + \beta_5 ROA_{it} + \varepsilon \quad \text{.....(3-4)}$$

Variable	Pred. Sign	Abnormal Discretionary Expense	Abnormal Production Costs	Abnormal Cash Flows
MEET	(?)	0.114	0.752	1.981
		(0.34)	(2.54)**	(9.2)***
MEET ×RATCHETER	(+)	0.990	1.425	1.368
		(2.31)**	(3.76)***	(4.95)***
SIZE		-2.026	-1.594	0.730
		(-8.22)***	(-7.19)***	(4.58)***
MTB		2.820	2.348	-0.363
		(9.14)***	(8.54)***	(-1.82)*
ROA		14.470	48.750	32.060
		(8.02)***	(31.12)***	(28)***
Firm & year Fixed Effect		Included	Included	Included
# of Obs.		7,666	7,428	7,514
-2 Res Log Likelihood		-13,880.0	-15,192.1	-19,376.9

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions

Variable Definitions:

GoodYTD= 1 if the ratio of Current Earnings through the first three quarters of annual reported earnings exceeds the average value of the same ratio over the previous three years (in I/B/E/S), and 0 otherwise;

$Q4\_EARN\%$ =Actual Q4 EPS (from I/B/E/S) /Current Expected Performance (S);

DTE_{it} = Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets;

MEET=A binary variable that is set equal to 1 if both earnings before discretionary accruals ($EBDA^{PMAU}_{it}$) and reported performance are above expected performance, and 0 otherwise;

RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise (see Appendix C for details);

ΔCFO= change in cash flows from continuing operations (annual Compustat #308-#124) from year t-1 to year t, scaled by total assets as of the beginning of year t;

ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6);

MTB= Logarithm of MB; MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60);

SIZE= Logarithm of the Market Value of Equity (Compustat #199× Compustat #25);

Abnormal_CFO= Abnormal Cash Flows from operations (see Appendix C for details);

Abnormal_DISEXP= Abnormal Discretionary Expenses (see Appendix C for details);

Abnormal_PROD= Abnormal production costs (see Appendix C for details).

Table 11: Earnings management in response to a temporary earnings increase

Panel A: Accrual management when there is a temporary earnings increase

$$DTE_{it} = \alpha_t + \alpha_i + \lambda_1 TEMP_{it} + \lambda_1 RATCHETER_i \times TEMP_{it} + \lambda_3 \Delta CFO + \lambda_4 MTB + \lambda_5 ROA + \varepsilon_{it} \quad \text{.....(3-5)}$$

	Predicted Sign	(1)	(2)	(3)
TEMP		0.042	0.034	0.041
		(1.03)	(0.85)	(1.01)
TEMP ×RATCHETER	(-)	-0.086	-0.119	-0.092
		(-1.49)	(-2.1)**	(-1.59)
ΔCFO		0.483	-0.124	0.434
		(3.2)***	(-0.81)	(2.84)***
MTB		0.134	-0.083	0.134
		(5.07)***	(-3.03)***	(4.95)***
ROA			5.579	
			(25.39)***	
EBDA				0.003
				(1.32)
Firm Fixed Effect		Included	Included	Included
Year Fixed Effect		Included	Included	Included
# of Obs.		8,612	8,625	8,469
-2 Res Log Likelihood		-45,521.1	-45,803.9	-44,611.7

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions; **Variable Definitions**: DTE= Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets; RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise (see Appendix C for details); ΔCFO= change in cash flows from continuing operations; ROA= Income before Extraordinary Items scaled by Lagged Total Assets; MTB= Logarithm of MB; MB= Ratio of Market Value to Book Value of equity; $EBDA$ = Firm i's earnings before discretionary accruals (see Appendix C for details); TEMP= A binary variable that is set equal to 1 if $EBDA^{PMMJ}_{it} > EBDA^{PMMJ}_{it+1}$, $EBDA^{PMMJ}_{it}$ > Expected Performance(S_{it}) and Reported Earnings (A_{it}) > S_{it}, and 0 otherwise.

Table 11- continued

Panel B: Real activities management when there is a temporary earnings increase

$$Y_{it} = \alpha_i + \alpha_t + \beta_1 TEMP_{it} + \beta_2 TEMP_{it} \times RATCHETER_i + \beta_3 SIZE_{it} + \beta_4 MTB_{it} + \beta_5 ROA_{it} + \varepsilon \quad \text{.....(3-6)}$$

Variable	Pred. Sign	Abnormal Discretionary Expense	Abnormal Production Costs	Abnormal Cash Flows
TEMP	(?)	-0.023	0.852	2.053
		(-0.06)	(2.49)**	(8.24)***
TEMP ×RATCHETER	(+)	1.172	1.089	1.225
		(2.33)**	(2.43)**	(3.75)***
SIZE		-2.052	-1.648	0.618
		(-8.35)***	(-7.42)***	(3.86)***
MTB		2.902	2.623	0.011
		(9.5)***	(9.59)***	(0.06)
ROA		14.780	50.210	34.430
		(8.31)***	(32.38)***	(30.28)***
Firm Fixed Effect		Included	Included	Included
Year Fixed Effect		Included	Included	Included
# of Obs.		7,,661	7,427	7,504
-2 Res Log Likelihood		-13,917.3	-15,163.7	-19,322.4

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions

Variable Definitions:

ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6);
MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60);
MTB= Logarithm of MB;
RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise (see Appendix C for details);
SIZE= Logarithm of the Market Value of Equity (Compustat #199× Compustat #25);
TEMP= A binary variable that is set equal to 1 if $EBDA^{PMM}_{it} > EBDA^{PMM}_{it+1}$, $EBDA^{PMM}_{it}$ > Expected Performance(S_{it}) and Reported Earnings (A_{it}) > S_{it}, and 0 otherwise;
Abnormal_CFO= Abnormal Cash Flows from operations (see Appendix C for details);
Abnormal_DISEXP= Abnormal Discretionary Expenses (see Appendix C for details);
Abnormal_PROD= Abnormal production costs (see Appendix C for details).

Table 12: Robustness Check – Controlling for additional time-varying factors

Panel A: Descriptive statistics

	RATCHETER		NON-RATCHETER		
Variable	Mean	Median	Mean	Median	t-stat
ROA	8.29%	8.45%	3.73%	3.60%	32.75***
Total Assets (in millions)	2,980	763	11,084	2,710	-24.73***
MV (in millions)	4,777	1,004	5,177	1,327	-1.96*
AF	11.8	9.0	12.2	10.0	-3.78***
EARN_VOL	0.058	0.041	0.026	0.015	37.85***
STK_VOL	0.029	0.028	0.022	0.019	43.98***
Beta	1.227	1.164	0.955	0.923	29.64***
MB	3.67	2.68	2.48	1.91	26.34***
INT_HOLD	56.2%	58.2%	49.7%	50.7%	20.21***

Variable Definitions:

ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6); *Total Assets*=Total assets (Compustat #6); *MV*= The market value of a company's equity (Compustat #199×Compustat #25); *AF*= Number of analysts who issued earnings forecasts nine-months prior to the end of the fiscal year; *INT_HOLD*= The percentage of shares held by institutional investors (Thomson Financial); *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60); Beta = Beta is estimated from a market model using monthly return data over the past 5 years prior to the current fiscal year t.

Table 12-Continued

Panel B: Fourth quarter earnings management – Controlling for additional time-varying factors

Variable	Predicted Sign	
GoodYTD	(-)	-0.0393 (-12.98)***
GoodYTD ×RATCHETER	(-)	-0.009 (-2.05)**
MTB		0.061 (15.85)***
ROA		0.319 (13.53)***
SIZE		-0.013 (-4.01)***
STK_VOL		-1.146 (-4.84)***
EARN_VOL		0.045 (0.96)
INT_HOLD		0.136 (10.3)***
Beta		-0.005 (-1.61)
Firm & year fixed effect		Included
# of Obs.		5169
-2 Res Log Likelihood		-9114.2

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** *ROA*= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6); *INT_HOLD*= The percentage of shares held by institutional investors (Thomson Financial); *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60); *MTB*= Logarithm of MB; *Q4_EARN%*= Actual Q4 EPS (from I/B/E/S) /Current Expected Performance (S); GoodYTD= 1 if the ratio of Current Earnings through the first three quarters of annual reported earnings exceeds the average value of the same ratio over the previous three years (in I/B/E/S), and 0 otherwise; RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise (see Appendix C for details); *SIZE*= Logarithm of the Market Value of Equity (Compustat #199× Compustat #25); *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Beta = Beta is estimated from a market model using monthly return data over the past 5 years prior to the current fiscal year t.

Table 12-Continued

Panel C: Accruals management – Controlling for additional time-varying factors

Variable	Predicted Sign	
MEET	(?)	0.1188 (3.4)***
MEET ×RATCHETER	(-)	-0.253 (-5.21)***
ΔCFO		-0.094 (-0.59)
MTB		-0.098 (-2.78)***
ROA		5.965 (24.29)***
SIZE		0.027 (0.89)
STK_VOL		-8.069 (-3.68)***
EARN_VOL		1.324 (4.1)***
INT_HOLD		-0.146 (-1.34)
Beta		0.026 (0.91)
Firm & year fixed effect		Included
# of Obs.		8,261
-2 Res Log Likelihood		-43,785.5

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions**: DTE_{it} = Firm i's deferred tax expense in year t, scaled by beginning-of-year total assets; MEET=A binary variable that is set equal to 1 if both earnings before discretionary accruals ($EBDA^{PMM}_{it}$) and reported performance are above expected performance, and 0 otherwise; RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise; ΔCFO= change in cash flows from continuing operations from year t-1 to year t, scaled by total assets as of the beginning of year t; ROA= Income before Extraordinary Items scaled by Lagged Total Assets; MTB= Logarithm of MB; MB= Ratio of Market Value to Book Value of equity; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Beta = Beta is estimated from a market model using monthly return data over the past 5 years prior to the current fiscal year t. Please see Appendix C for other variable definitions.

Table 12-Continued
Panel D: Real management – Controlling for additional time-varying factors

Variable	Predicted Sign	Abnormal Discretionary Expense	Abnormal Production Costs	Abnormal Cash Flows
MEET	(?)	0.131	0.540	2.000
		(0.39)	(1.75)*	(8.61)***
MEET ×RATCHETER	(+)	0.855	1.515	0.998
		(1.98)**	(3.86)***	(3.35)***
SIZE		-1.953	-1.558	0.731
		(-7.11)***	(-6.13)***	(3.86)***
MTB		2.642	2.882	-0.069
		(7.91)***	(9.46)***	(-0.3)
ROA		12.760	45.340	29.820
		(6.56)***	(25.87)***	(22.87)***
STK_VOL		-18.39	34.88	19.03
		(-0.99)	(2.06)**	(1.48)
EARN_VOL		-0.08	0.001	-0.064
		(-0.62)	0.01	(-0.73)
INT_HOLD		2.307	-1.033	0.045
		(2.17)**	(-1.06)	(0.06)
Beta		-0.085	0.600	0.172
		(-0.36)	(2.63)***	(1.02)
Firm & year fixed effect		Included	Included	Included
# of Obs.		6350	6236	6292
-2 Res Log Likelihood		-11918.8	-12788.5	-15744.6

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** *ROA*= Income before Extraordinary Items scaled by Lagged Total Assets; MB= Ratio of the Market Value to Book Value of equity; *MTB*= Logarithm of MB; *RATCHETER*= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise; MEET=A binary variable that is set equal to 1 if both earnings before discretionary accruals ($EBDA^{PMM}$) and reported performance are above expected performance, and 0 otherwise; *SIZE*= Logarithm of the Market Value of Equity; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Beta = Beta is estimated from a market model using monthly return data over the past 5 years prior to the current fiscal year t.

Table 13: Robustness Check – Controlling for the "upper bound" of bonus plans
Panel A: Accruals management – Controlling for the "upper bound" of bonus plans

		Truncate if Unexpected performance >5 cents		Truncate if Unexpected performance >3 cents	
Variable	Predicted Sign	(1)	(2)	(3)	(4)
MEET	(?)	0.105 (2.16)**	0.100 (2.06)**	0.176 (3.12)***	0.165 (2.92)***
MEET ×RATCHETER	(-)	-0.258 (-3.72)***	-0.264 (-3.81)***	-0.324 (-4.02)***	-0.309 (-3.81)***
ΔCFO		-0.171 (-0.94)	-0.177 (-0.94)	-0.099 (-0.52)	-0.089 (-0.45)
MTB		-0.036 (-1.12)	-0.049 (-1.17)	-0.005 (-0.14)	-0.017 (-0.39)
ROA		7.383 (27.87)***	7.155 (24.71)***	7.438 (27.02)***	7.269 (24.02)***
SIZE			-0.012 (-0.33)		0.001 (0.04)
STK_VOL			-6.022 (-2.37)**		-5.094 (-1.92)*
EARN_VOL			0.488 (1.73)*		0.303 (1.05)
INT_HOLD			-0.124 (-1.00)		-0.067 (-0.52)
Beta			-0.035 (-1.05)		-0.037 (-1.08)
Firm & year fixed effect		Included	Included	Included	Included
# of Obs.		6,467	6,216	6,034	5,791
-2 Res Log Likelihood		-32,483.3	-30,968.4	-29,729.7	-28,246.5

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions**: DTE_{it} = Firm i's deferred tax expense in year t, scaled by beginning-of-year total assets; ΔCFO= change in cash flows from continuing operations from year t-1 to year t, scaled by total assets as of the beginning of year t; ROA= Income before Extraordinary Items scaled by Lagged Total Assets; MTB= Logarithm of MB; MB= Ratio of Market Value to Book Value of equity; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Beta = Beta is estimated from a market model using monthly return data over the past 5 years prior to the current fiscal year t. Please see Appendix C for other variable definitions.

Table 13 -- Continued

Panel B: Real activities management— Controlling for the "upper bound" of bonus plans

	Truncate if Unexpected performance >5 cents					
Variable	Abnormal Discretionary Expense		Abnormal Production Costs		Abnormal CFO	
MEET	-0.251	-0.326	0.548	0.224	1.763	1.975
	(-0.54)	(-0.7)	(1.36)	(0.52)	(5.98)***	(6.2)***
MEET ×RATCHETER	1.291	1.326	1.921	2.353	1.717	1.464
	(2.13)**	(2.17)**	(3.63)***	(4.16)***	(4.43)***	(3.47)***
SIZE	-2.298	-2.255	-1.833	-1.931	0.786	0.785
	(-8.21)***	(-7.19)***	(-7.35)***	(-6.55)***	(4.38)***	(3.63)***
MTB	2.792	2.418	2.615	3.184	-0.259	-0.002
	(7.78)***	(6.12)***	(8.23)***	(8.73)***	(-1.14)	(-0.01)
ROA	10.200	9.379	45.500	43.470	31.560	28.630
	(4.82)***	(4.18)***	(24.59)***	(21.07)***	(23.64)***	(18.58)***
STK_VOL		-39.800		14.100		28.150
		(-1.89)*		(0.72)		(1.92)*
EARN_VOL		-0.015		-0.039		-0.025
		(-0.08)		(-0.23)		(-0.19)
INT_HOLD		2.537		-2.130		-0.202
		(2.03)**		(-1.82)*		(-0.23)
Beta		-0.232		0.651		0.371
		(-0.87)		(2.44)**		(1.95)*
Firm & year fixed effect	Included	Included	Included	Included	Included	Included
# of Obs.	5,931	4,845	5,738	4,777	5,825	4,813
-2 Res Log Likelihood	-10227.6	-8527.8	-11290.7	-9048.9	-14397.7	-11307.9

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** *MTB*= Logarithm of MB; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Please see Appendix C for other variable definitions.

Table 13 - Continued

Panel C: Real activities management— Controlling for the "upper bound" of bonus plans

	Truncate if Unexpected performance >3 cents					
Variable	Discretionary Expense		Abnormal Production Costs		Abnormal CFO	
MEET	-0.453	-1.029	0.356	-0.024	1.704	1.756
	(-0.85)	(-1.92)*	(0.77)	(-0.05)	(4.95)***	(4.7)***
MEET ×RATCHETER	1.564	1.830	1.965	2.331	1.808	1.823
	(2.23)**	(2.6)***	(3.21)***	(3.53)***	(3.97)***	(3.68)***
SIZE	-2.268	-2.342	-1.583	-1.728	0.905	0.985
	(-7.94)***	(-7.35)***	(-6.18)***	(-5.69)***	(4.87)***	(4.38)***
MTB	2.587	2.517	2.491	3.112	-0.314	-0.119
	(7.07)***	(6.28)***	(7.62)***	(8.3)***	(-1.33)	(-0.42)
ROA	11.090	8.489	43.310	41.530	30.990	27.530
	(5.1)***	(3.71)***	(22.73)***	(19.51)***	(22.28)***	(17.11)***
STK_VOL		-55.540		12.920		0.644
		(-2.57)**		(0.63)		(1.92)*
EARN_VOL		-0.337		-0.240		13.360
		(-0.71)		(-0.54)		(0.86)
INT_HOLD		2.067		-1.894		0.155
		(1.62)		(-1.55)		(0.17)
Beta		-0.191		0.671		0.319
		(-0.7)		(2.41)**		(1.59)
Firm & year fixed effect	Included	Included	Included	Included	Included	Included
# of Obs.	5,544	4,490	5,368	4,445	5,445	4,474
-2 Res Log Likelihood	-9502.2	-7868.4	-10426.9	-8271.3	-13205.6	-10258.7

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** *MTB*= Logarithm of MB; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Please see Appendix C for other variable definitions.

Table 14: Robustness Check – Controlling for capital market explanations

Panel A: Accruals Management – Controlling for capital market explanations

Variable	Predicted Sign	
MEET	(?)	0.245
		(3.78)***
MEET	(-)	-0.204
× RATCHETER		(-3.86)***
MEET	(-)	-0.749
× STK_VOL		(-0.28)
MEET	(-)	-0.251
×EARN_VOL		(-0.54)
MEET	(-)	-0.124
×Beta		(-2.82)***
ΔCFO		-0.059
		(-0.37)
MTB		-0.086
		(-2.44)**
ROA		6.211
		(25.1)***
SIZE		0.011
		(0.37)
STK_VOL		-7.774
		(-3.4)***
EARN_VOL		1.334
		(3.87)***
INT_HOLD		-0.153
		(-1.4)
Beta		0.058
		(1.87)*
Firm & year fixed effect		Included
# of Obs.		8,260
-2 Res Log Likelihood		-43762.3

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** *MTB*= Logarithm of MB; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Please see Appendix C for other variable definitions.

Table 14 – Continued

Panel B: Real activities management - – Controlling for capital market explanations

Variable	Predicted Sign	Abnormal Discretionary Expenses	Abnormal Production Costs	Abnormal CFO
MEET	(?)	-0.828	-0.063	0.666
		(-1.32)	(-0.11)	(1.55)
MEET × RATCHETER	(+)	0.465	1.451	0.637
		(1.02)	(3.5)***	(2.03)**
MEET × STK_VOL	(+)	41.730	12.270	43.560
		(1.93)*	(0.62)	(2.87)***
MEET ×EARN_VOL	(+)	-0.115	-0.309	0.543
		(-0.67)	(-1.98)**	(0.28)
MEET ×Beta	(+)	0.201	0.347	0.406
		(0.53)	(0.98)	(1.53)
SIZE		-1.913	-1.503	0.692
		(-6.94)***	(-5.9)***	(3.63)***
MTB		2.574	2.829	-0.045
		(7.7)***	(9.28)***	(-0.19)
ROA		12.090	44.830	28.860
		(6.2)***	(25.47)***	(21.8)***
STK_VOL		-32.550	34.860	7.156
		(-1.7)*	(1.99)**	(0.54)
EARN_VOL		-0.029	0.132	-0.631
		(-0.2)*	(1.00)	(-0.33)
INT_HOLD		2.067	-1.117	-0.106
		(1.94)*	(-1.15)	(-0.14)
Beta		-0.092	0.534	0.062
		(-0.36)	(2.15)**	(0.34)
Firm & year fixed effect		Included	Included	Included
# of Obs.		6,350	6,235	6,292
-2 Res Log Likelihood		-11,898.8	-12,776.2	-15,731.9

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions. **Variable Definitions:** *MTB*= Logarithm of MB; *INT_HOLD*= The percentage of shares held by institutional investors; *STK_VOL*= The volatility of a company's stock over a fiscal year, which is calculated as the standard deviation of the stock's daily return for the fiscal year; *EARN_VOL*= The volatility of earnings, which is estimated as the standard deviation of ROA over the past 5 years; Please see Appendix C for other variable definitions.

Table 15: Out-of-sample tests

Panel A: Accruals management – out-of-sample test

	Predicted Sign	
MEET	(?)	0.026
		(0.42)
MEET ×RATCHETER	(-)	-0.191
		(-2.28)**
ΔCFO		-0.823
		(-2.85)***
MTB		-0.044
		(-0.85)
ROA		9.571
		(20.45)***
Firm & year fixed effect		Included
# of Obs.		2,837
-2 Res Log Likelihood		-13,605.0

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions.

Variable Definitions:
DTE_{it} = Firm i's deferred tax expense (Compustat #50) in year t, scaled by beginning-of-year total assets;
MEET=A binary variable that is set equal to 1 if both earnings before discretionary accruals ($EBDA^{PMMJ}{}_{it}$) and reported performance are above expected performance, and 0 otherwise;
RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise (see Appendix C for details);
ΔCFO= change in cash flows from continuing operations (annual Compustat #308-#124) from year t-1 to year t, scaled by total assets as of the beginning of year t;
ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6);
MTB= Logarithm of MB; MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60);

Table 15 - Continued

Panel B: Real activities management – out-of-sample tests

Variable	Predicted Sign	Abnormal Discretionary Expense	Abnormal Production Costs	Abnormal Cash Flows
MEET	(?)	-0.079	0.258	1.726
		(-0.14)	(0.49)	(4.35)***
MEET ×RATCHETER	(+)	-0.366	0.837	1.425
		(-0.52)	(1.31)	(2.91)***
SIZE		-1.779	-1.704	1.384
		(-3.2)***	(-3.47)***	(3.62)***
MTB		2.710	2.864	-0.506
		(4.49)***	(5.33)***	(-1.22)
ROA		19.100	42.220	29.380
		(6.02)***	(15.29)***	(13.02)***
Firm & year fixed Effect		Included	Included	Included
# of Obs.		2,064	2,038	2,040
-2 Res Log Likelihood		-3,898	-4159.1	-4933.9

*,**, and *** correspond to 10%, 5% and 1% significance levels at two tails respectively. Observations with studentized residuals greater than 2 are eliminated. Coefficients are presented as 100 times the original amount on this panel. Please see Appendix C for detailed variable descriptions.

Variable Definitions:
ROA= Income before Extraordinary Items (Compustat #18) scaled by Lagged Total Assets (Compustat #6);
MB= Ratio of the Market Value (Compustat #199* #25) to the Book Value of equity (Compustat #60);
MTB= Logarithm of MB;
RATCHETER= 1 if firm i is identified as a firm with intensive performance-expectation ratcheting, and 0 otherwise (see Appendix C for details);
MEET=A binary variable that is set equal to 1 if both earnings before discretionary accruals ($EBDA^{PMMJ}_{it}$) and reported performance are above expected performance, and 0 otherwise;
SIZE= Logarithm of the Market Value of Equity (Compustat #199× Compustat #25);
Abnormal_CFO= Abnormal Cash Flows from operations (see Appendix C for details);
Abnormal_DISEXP= Abnormal Discretionary Expenses (see Appendix C for details);
Abnormal_PROD= Abnormal production costs (see Appendix C for details).