경영학석사학위논문

Relative Target Setting : Performance-dependent Asymmetry and Real Driving Power

상대적 목표설정의 비대칭성과 근본적 동인

2018년 2월

서울대학교 대학원
경영학과 (회계학 전공)

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ABSTRACT

Relative Target Setting: Performance-dependent Asymmetry and Real Driving Power

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Firms use various sources of information in target setting. Since target setting functions as a management control mechanism, differences in firm environments should cause cross-sectional variation in firm's target setting practices. While peer information is a primary source of valuable information, we still do not know the detailed landscape of how it is used in relative target setting(RTS). I conjecture that the use of peer information shows asymmetry, depending on relative performance. Upon empirical investigation, I find evidence supporting the performance-dependent asymmetry in RTS. Outperforming firms more actively exploit the peer information in target setting than poor performing firms. Next, I investigate a traditional assumption in target setting literature – the optimal contracting assumption. I examine determinants of serial correlation in target deviation, and find evidence inconsistent with optimal contracting view. That is, positive association between RTS and serial correlation is mediated by greater CEO power and financial distress, but not by manager ability, indicating separating contracts hypothesis needs re-examination.

Keywords: *Executive compensation; performance targets; relative target setting; annual bonuses;*
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1. Introduction

Performance targets serve various roles in management control system, such as planning, motivation and evaluation. How firms set performance targets can affect both current and future compensation amount, suggesting that both the firm and manager are likely to be keenly interested in the target setting process. For instance, high current performance increases not only current compensation but also future target difficulty, which could potentially decrease future compensation amounts. Since managerial contracts span over multiple periods, managers try to optimize total compensation, rather than current period compensation, by making strategic actions throughout the target setting process. Especially, annual bonus targets are more likely to involve such strategic behavior, since they are single-period contracts that continually repeats. Thus, firm should consider the full spectrum of effects – including both positive and adverse effects – that annual bonus target setting may have on managers.

How performance goals are set affects the strength of managerial goal commitment and allocation of efforts (Locke and Latham 2002). Which information to use in target setting and how to use them are important in motivating the manager. Target setting literature has discussed several feasible sources of information, such as past performance, peer performance, or analyst forecasts (Indjejikian and Nanda 2002, Indjejikian et al. 2014b, Bouwens and Kroos 2016, Choi et al. WP).

Among various information sources, prior performance has been vastly studied in target setting literature. Theories predict target ratcheting (Weitzman 1980) and the prediction is supported by empirical evidences (Leone and Rock 2002, Bouwens and Kroos 2011, Indjejikian et al 2014a). Theories also predict ratchet effects (Leone and Rock 2002), and empirical evidences support it (Leone and Rock 2002, Bouwens and Kroos 2011). Ratchet asymmetry is suggested as one way to mitigate the adverse consequence of target ratcheting, which is called ratchet effect (Indjejikian et al 2014a).[1] Another solution to ratchet effect is contractual commitment with high-profitability managers. Efficient contracting theory predicts that firms do not fully exploit prior performance information to avoid high-profitability managers' strategic behavior of hiding true performance (Laffont and Tirole 1993). Supporting this prediction, prior studies show serial correlation in target deviation (Indjejikian et al 2014a, Bol and Lill 2015, Kim and Shin 2016).

Contrary to vast extant literature on past performance, only a few empirical studies have investigated peer information as a source of information used in target setting. The lack of extant literature in this area is surprising, considering that use of peer information in performance evaluation (RPE) has been a regular topic of both theory and empirical studies. Intrinsic productivity explanation in economic theory predicts that peer information may function as a valuable source of information that can be used for relative targets (Meyer and Vickers 1997). Theory suggests that peer information helps distinguish between transitory and permanent earnings in positive deviation from targets. Firms can avoid ratcheting targets up unnecessarily, by exploiting peer information which captures transitory earnings from common exogenous shock. Empirical studies find that relative performance affects the use of prior performance in target setting, thus partly shaping target ratcheting and ratchet

[1] Target ratcheting is defined as target revision upward after positive deviation from previous target and target revision downward after negative deviation. Ratchet effect is defined as managers' strategic effort reduction in current period to avoid future upward target revision. Ratchet asymmetry is defined as greater target revision upward after positive deviation from previous target and smaller target revision downward after negative deviation.

effects (Indjejikian et al. 2014a, Aranda et al. 2014). Aranda et al. (2014) named it "RTS (relative target setting)". However, existing literature on the determinants of RTS is still relatively scarce. Thus, the aim of my paper is to examine whether the use of peer information shows asymmetry, like as ratchet asymmetry. Since use of certain information sources in target setting could accompany adverse incentive problem, firms could adopt a sort of safety devices when using it. I suppose asymmetric RTS can serve as a partial remedy. By examining the asymmetry in RTS, we can expand the knowledge on the complex incentive effects of target setting. Further, the result of this study may also provide implication in practice, notifying the conditions where the use of peer information becomes more beneficial for firms.

This study adds to the streams of research that predict the use of asymmetric RTS. First, efficient contracting theory predicts asymmetric use of RTS (Laffont and Tirole 1993, Baron and Besanko 1984). According to this stream of literature, firms engage in long-term contractual commitment through which they maintain easier targets for high-profitability managers. Under long-term commitment, managers lose incentive to withhold current efforts to avoid target ratcheting. Firms make such commitment only with high-profitability managers who have much room for intentional shirking. Thus, efficient contracting theory predicts only high-profitability managers earn informational rents, while low-profitability managers do not. Second, rent extraction hypothesis also predicts asymmetric RTS. Prior studies in this area find that more powerful CEOs earn greater amount of pay by influencing the board to set less challenging targets (Yermack 1996, Core et al. 1999, Mullainathan 2001, Essen et al. 2015). Asymmetric use of RTS depending on relative performance could be a vehicle of rent extraction by powerful CEO. Lastly, goal setting theory (Locke et al. 1981, Erez and Zidon 1984, Locke and Latham 2002) also predicts asymmetric use of RTS. While firms in different financial status have different optimal allocation of managerial efforts, goals can encourage managers to exert a desired level of effort in desired direction. Here, more difficult goals on certain tasks encourage managers to focus on the goal-related tasks while motivating them to exert less attention towards tasks that are unrelated to the goal. To illustrate a case in point, firms with need to boost up short-term performance would set tighter targets on annual bonus, which is short-term incentives, than on other long-term incentives. I expect tighter target setting for low-profitability firms, based on goal setting theory.

First, I examine asymmetry of RTS depending on whether the firm is above-peers-average or below-peers-average. I find evidence that supports asymmetric RTS, after controlling target ratcheting, ratchet asymmetry, indirect effects of peer information and other control variables. Both full sample test with interaction term and subsample tests support that firms more actively exploit peer information after above-peers performance and less actively after below-peers performance.

Next, I investigate the determinants of target setting practices to document more consistent explanations among the theories discussed above. Prior empirical studies on target setting have mainly focused on "how" targets are set. That is, studies on "why" firms set targets in certain ways have been scarce. It is important to find the real driving power of target setting practices including RTS and asymmetric RTS, since we can judge whether such practices are truly beneficial for firms. So far, prior target ratcheting literature has implicitly assumed that target setting practices are driven by optimal contracting by BOD. However, attempts to verify optimal contracting assumption have been limited. Testing this assumption is important because if the real driving power[2] of RTS or asymmetric RTS is rent extraction by powerful CEO, rather than optimal contracting, than such target setting practices are potentially harmful to firm value.

Prior studies on RTS generally have assumed efficient contracting view. Even though theoretical explanations on RTS have not been exactly agreed between Indjejikian et al. (2014a) and Aranda et al. (2014), both papers assume efficient contracting view. Indjejikian et al. (2014a) argue the use of peer information in target ratcheting is the evidence of the long-term contractual commitment which aims for contract efficiency. Aranda et al. (2014) argue that RTS is the reflection of intrinsic productivity of manager, which also supports the efficient contracting view. Beside explanations above, other streams of theories such as goal setting theory and rent extraction hypothesis also can explain the RTS practices[3]. The second goal of my paper is to distinguish the real driving power of RTS practices among potential economic forces.

I also examine the determinants of serial correlation of target deviation to figure out the real driving power of RTS practices. Serial correlation of target deviation is the consequence of tempered use of past performance in target setting practice (Indjejikian and Nanda 2002, Indjejikian et al. 2014a, Kim and Shin 2016).

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[2] Here, real driving power refer to economic forces that lead to certain set of target setting practices. The economic forces that trigger use of RTS or asymmetric use of RTS could be one or more of followings: BOD's need for more efficient contracting (intrinsic productivity, contractual commitment) manager's self-interested behavior to earn excess pay, or firm's need for optimal effort allocation of managerial efforts.

[3] RTS practices refer to both RTS and asymmetric RTS. Latent economic forces would simultaneously affect RTS, asymmetric RTS, and other target setting practices (e.g. target ratcheting, ratchet asymmetry). Thus, I have no occasion to distinguish between determinants of each practice.

That is, serial correlation results from certain way of target setting practice. Again, certain way of target setting practice (e.g. RTS) is the consequence of invisible economic power. Thus, RTS and serial correlation of target deviation are affected by same economic power. I trace back to the latent economic forces of RTS and asymmetric RTS by investigating the determinants of serial correlation of target deviation. Specifically, I examine whether the association between relative performance and serial correlation is mediated by following potential determinants: manager ability, CEO power, and/or financial distress. Respectively, each of these determinants connotes the economic power of efficient contracting view, rent extraction view, and goal setting theory, respectively. Empirical results show that serial correlation of target deviation is more pronounced under higher CEO power and financial distress. In contrast, manager ability does not mediate the relationship between RTS and serial correlation. These results suggest that traditional assumption in target setting literature (i.e. efficient contracting or separating equilibrium of contracts) needs to be re-examined.

The remaining part of this paper is organized as follows. In Section 2, I review the literature and develop my hypotheses. In Section 3, I describe the sample and research design. I report descriptive statistics in Section 4. Section 5 reports empirical results. In Section 6, I check the robustness of the main results. The final section concludes the paper.

2. Literature Review and Hypothesis Development

2.1. Efficient Contracting Theory

Efficient contracting theory suggests that both firms and managers can be better off by reducing the level of information asymmetry that exists between them. First, information asymmetry on managers' intrinsic productivity can increase unnecessary compensation risk. Intrinsic productivity hypothesis (Meyer and Vickers 1997) predicts firms can reduce information asymmetry on managers' true productivity by exploiting peer firms' performance information. Second, information asymmetry on manager's true performance is an example of potential moral hazard.[4] Firm can deter managers from strategic effort reduction by engaging in separating contracts in which firms continuously grant easier targets to high-profitability managers but do not give such prizes to low-profitability managers (Baron and Besanko 1984, Laffont and Tirole 1993).

2.1.1. Intrinsic Productivity

Firm can reduce the uncertainty on intrinsic productivity of managers by exploiting peer information. Target setting is a dynamic process that involves adverse incentive effects arising from uncertainty on intrinsic productivity. Positive deviation from targets contains both transitory and permanent earnings. Under the target setting scheme that firms fully reflect the deviation in future target revision, managers have incentives to downscale the reported earnings to avoid higher target revision. To mitigate this problem, Meyer and Vickers (1997) argue relative performance information alleviates the adverse incentive effects of target ratcheting.

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[4] Productivity and performance are not necessarily identical. Even though a manager has high productivity, he/she can strategically withhold efforts and present low (observed) performance.

Since some of transitory earnings are earned from common exogenous shocks such as strong economy, peer performance has informativeness on such transitory earnings if production functions among peers are highly correlated. In these circumstances, firms can avoid unnecessary portion of target ratcheting, by excluding transitory earnings from target revision. This protects the risk-averse managers from exogenous shocks that increase the firm's tail risk, thereby decreasing the CEO's compensation risk. By reflecting average productivity of peers in individual target setting, each firm's target "converges" to average productivity.

Consistent with theoretical prediction, Aranda et al. (2014) find firms reflect relative performance in target ratcheting and ratchet asymmetry. Specifically, they find that the magnitude of ratcheting decreases (increases) with relative target difficulty for favorable (unfavorable) performance variances. They also find ratchet asymmetry attenuates with relative target difficulty. These results suggest that overly difficult targets lead to lessened targets in next year and overly easy targets leads to intensified targets in the following year, thus targets converge to average productivity.

Based on intrinsic productivity explanation, I predict RTS use. Firms would exploit peer information when setting targets every year, to distinguish permanent productivity change from total positive deviation from prior targets.

2.1.2. Separating Equilibrium of Contracts

At the end of a period, managers know their true performance, while firms do not. Information asymmetry on true performance can lead to managers' strategic effort reduction, given targets ratchet up as prior performances increase. Firm can avoid such moral hazard, by engaging in long-term contractual commitment. As one way, firms may promise not to fully reflect prior performance in target setting. Under such long-term commitment, managers lose incentive to intentionally withhold efforts and firms can reduce potential moral hazard. Tempered ratcheting under this contract allows managers to successively deviate from targets, thus receiving large bonus every year. This is called economic rents or informational rents for high-profitability managers (Laffont and Tirole 1993). Contrary to high-profitability manager, low-profitability managers earn almost no rents from firms. It is because firms lose little from low-profitability managers' shirking while firms lose a lot from high-profitability managers' shirking. Consequently, long-term commitment contracts lead to "separating" equilibrium for high-profitability managers and low-profitability managers (Baron and Besanko 1984).

Consistent with theoretical prediction, empirical studies find evidences of serial correlation in target meeting or target deviation (Indjejikian and Nanda 2002, Indjejikian and Matejka 2006, Injejikian et al. 2014b, Kim and Shin 2016). Existence of serial correlation in target deviation suggests that some firms repeatedly meet targets, while other firms repeatedly fail to meet targets. Here, firms engage in separating equilibrium of contracts that is contingent upon whether the manager is high-profitability or low-profitability manager. Different target ratcheting and ratchet asymmetry depending on relative performance of managers also imply the separating equilibrium. Indjejikian et al. (2014a) find that high-profitability firms are more likely to decrease earnings targets when managers fail to meet prior targets, but rarely increase targets. Conversely, they find low-profitability firms are more likely to increase earnings targets when managers exceed prior targets, but rarely revise targets downward.

Even though empirical studies have focused on limited use of past performance as a way to give informational rents to high-type managers, separating contracts can appear in different ways. For instance, firms can sustain easier targets for high-type managers by actively exploiting peer information. Specifically, firms reflect relative performance information in targets in negative direction, thus revise targets downward after superior relative performance. Based on separating contractual equilibrium, I predict the asymmetric use of RTS. Firms would reflect relative performance more actively in target setting for high-type managers as an informational rents, but less actively for low-type managers.[5]

2.2. Rent Extraction View

Rent extraction view posits that managerial power is the driving power of rents, whereby prior studies document powerful CEO earns greater amount of pay. Yermack (1996) provides evidence that firm value and performance is a decreasing function of board size. Core, Holthausen and Larcker (1999) find that measures of board and ownership structure explain a significant amount of cross-sectional variation in CEO compensation. Essen, Otten and Carberry (2015) paper also indicates that, in most situation where CEOs are expected to have power over the pay setting process, they receive significantly higher levels of total cash and total compensation. In addition, Mullainathan (2001) finds CEO pay increases with

[5] Separating equilibrium story in Indjejikian et al.(2014a) differentiates from Aranda et al. (2014) in that informational rents are given *ex ante*, thus, assumes that firms already know managers' type(productivity) before firms enter into contracts. In contrast, Aranda et al. (2014) argument assumes firms gradually learn managers' intrinsic productivity by exploiting peer information. Even though two arguments explain same phenomenon (use of peer information in target setting), assumptions and economic power on which each paper develops are significantly different. However, attempts to figure out real driving power of RTS have been limited so far. Still, we do not know which one between productivity and economic rents explains RTS better. In addition, among two perspectives on economic rents, optimal contracting and rent extraction, also have hardly been distinguished. I try to shed a lights on economic forces of RTS, by examining serial correlation of target deviation.

positive earnings due to strong economy, and this kind of pay for "luck" increases under bad governance.

In target setting perspective, given rent extraction hypothesis holds, asymmetric RTS would be more pronounced with greater CEO power, but less pronounced with less CEO power.[6]

2.3. Goal Setting Theory

Budgeting also functions as mechanism to control for managerial effort allocation (Locke et al 1981). Setting appropriate performance targets can optimally motivate managers' choice between short-term efforts and long-term efforts. Optimal allocation of efforts varies depending on firms' financial status. Firms with high profitability aim at balanced weights of long-term and short-term efforts. Contrary, for firms with low profitability, short-term performance is more valued to resolve the financial distress.

More difficult targets increase managers' commitment, given that the targets are accepted by the managers (Locke et al 1981, Erez and Zidon 1984, Locke and Latham 2002). In addition, more difficult targets on certain tasks attract managers' efforts, while distracting efforts from target-unrelated tasks (Locke and Latham 2002). Annual bonus is basically short-term incentive, since it is rewarded annually and targets are revised each year. Thus, firms in financial distress have incentives to concentrate managers' efforts on short-term performance through tightly set annual bonus targets. Consistent with this prediction, empirical evidences also support that earnings-based incentive plans encourage short-term profitability

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[6] Here, I do not expect the rent extraction view to solely explain the RTS. Rather, I believe rent extraction is in complementary relation with other economic powers.

(Healy 1985, Dechow and Sloan 1991, Gaver, Gaver, and Austin 1995, Holthausen et al. 1995, Guidry, Leone, and Rock 1999, Bhojraj and Libby 2005, Comprix and Muller 2006). Other empirical evidences find firms experiencing poor profitability have incentives to cut the long-term investment and to boost up short-term profit (Gilson et al 1990, John et al 1992, Ofek 1993). Unique incentive of low-profitability firms to set difficult targets on annual bonus target would lead to asymmetric target revision behavior between high-profitability firms and low-profitability firms.

Based on goal setting theory, I predict asymmetric use of RTS. Firms under financial distress have greater incentives to encourage short-term earnings, than firms with sufficient liquidity. Hence, distressed firms would less actively compensate for marginal increase of relative performance than other firms. Figure 1 summarizes the predictions based on each theory and related rationale.

[Insert Figure 1 here]

H1 ***Firms use peer information in target setting more actively for high-profitability managers, but less actively for low-profitability managers.***

2.4. Serial Correlation of Target Deviation

RTS and serial correlation of target deviation both are “consequences” of invisible economic power which determines target setting behavior. Previous studies in target setting literature generally have focused on “how” targets are set, while few studies have investigated “why” targets are set in certain ways. Nevertheless, serial correlation of target deviation has provided some clues that may answer the “why” question.

Contract theory suggests that the ratchet effect can be alleviated if the contracting parties make long-term commitment. Firms could employ a certain level of commitment not to fully reflect prior performance in target revision to avoid adverse incentive consequences of target ratcheting (Milgrom and Roberts 1992, Laffont and Tirole 1993, Indjejikian and Nanda 1999). Consistent with theoretical prediction, empirical studies find evidences of serial correlation in target meeting or target deviation (Indjejikian and Nanda 2002, Indjejikian and Matejka 2006, Injejikian et al. 2014a, Kim and Shin 2016). Here, theory and empirical studies assume that firms' incentive to make optimal contracts is the economic power that leads to certain way of target setting.

It is worthwhile to testify how credible the assumption of optimal contracting is. As discussed above, there are several potential powers that drive RTS and RTS asymmetry: reflection of intrinsic productivity, informational rents driven by optimal contracting, rent extraction by powerful CEO, and short-termism under financial distress. I believe tests on determinants of serial correlation shall point to the determinants of target setting practices including RTS. Figure 2 shows the way determinants of serial correlation reveals the real driving power of RTS. Serial correlation of target deviation is outcome of target revision practice (e.g. target ratcheting, ratchet asymmetry, RTS, etc.). Since invisible economic power affects both target revision and serial correlation at the same time, we can inversely trace back to the real cause of RTS by examining determinants of serial correlation.

[Insert Figure 2 here]

First, I examine whether manager ability strengthens the positive association between RTS and serial correlation. Positive association would be more pronounced as manager ability increases, given that optimal contracting view of economic rents holds. Optimal contracting literature predicts only high-profitability managers earn economic rents while low-profitability managers earn almost no rents (Baron and Besanko 1984, Laffont and Tirole 1993, Indjejikian et al. 2014a). I expect positive association between relative performance and serial correlation in target deviation is to be more pronounced as manager ability gets higher.

H2a ***Effect of relative performance on serial correlation of target deviation is more pronounced as manager ability increases.***

Next, I examine whether CEO power strengthens positive association between RTS and serial correlation of target deviation. Positive association would be more pronounced as CEO power increases, given rent extraction explanation holds. I measure CEO power by tenure. Hill and Phan (1991) provide several reasons that CEO power increases with tenure. CEOs normally nominate new board members (Herman 1981, Mace 1971, Pfeffer 1972, Vance 1983). Thus, they may be able to exercise increasing influence over board composition, adding new directors and removing troublesome ones (Finkelstein & Hamhrick, 1989). Initially, new CEOs may have little influence over their boards, since their predecessors presumably nominated most board members, who therefore have little personal loyalty to the new CEOs. I expect positive association between relative performance and serial correlation in target deviation intensifies as CEO tenure increases.

H2b ***Effect of relative performance on serial correlation of target deviation is more pronounced as CEO tenure increases.***

Next, I examine whether financial distress mitigates positive association between relative performance and serial correlation of target deviation. Positive association would attenuate as firms are financially restrained, given goal setting theory holds. I measure financial distress by loss indicator of prior year.

H2c ***Effect of relative performance on serial correlation of target deviation is mitigated after experiencing loss.***

I believe serial correlation tests would help figure out more plausible explanation on real driving power of RTS.

3. Sample and Research Design

3.1. Sample

I begin with initial sample that consists of S&P 1500 firms for the fiscal years 2006-2014. I confine sample to firms using EPS as a performance measure in their executives' annual bonus contracts since EPS is the most widely used performance measure in annual bonus contracts. I use hand-collected data of EPS targets for annual bonus and actual EPS for each CEO, collected from the CD&As of proxy statements. In addition, I obtain stock return data from CRSP and financial statement data from Compustat. In total, 3,303 firm-years among S&P 1500 firms use EPS as performance measure for the CEO annual bonus contracts. I exclude firm-years without target information and peer performance information.[7] Further I exclude firm-years without consecutive two years' observations, since model specification needs data of current and prior year in one regression. Finally, sample is reduced to 1,206 firm-year observations over the 2006-2014 periods.

3.2. Research Design

3.2.1. Research Design to Test Performance-dependent Asymmetry of Relative Target Setting (H1)

According to previous research on target setting (Leone and Rock 2002, Bouwens and Kroos 2011, Indjejikian et al. 2014a, Kim and Shin 2016) and RTS (Aranda et al. 2014), I model target revisions as a function of target ratcheting, asymmetric ratchet asymmetry, and relative target setting. Specifically, I estimate the following OLS regression to test H1, i.e., whether RTS show asymmetry depending

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[7] If a stock split occurs during the year, I exclude that firm-year observation from my sample.

on relative performance:

$$
\begin{aligned}
\textit{Target revision}_{i,t+1} = {} & \lambda_0 + \lambda_1 \textit{Target deviation}_{i,t} + \lambda_2 \textit{Target deviation}_{i,t} \times \textit{D\_NEG}_{i,t} \\
& + \lambda_3 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \\
& + \lambda_4 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \times \textit{D\_NEG}_{i,t} \\
& + \lambda_5 \textit{Relative-to-peers}_{i,t} + \lambda_6 \textit{Relative-to-peers}_{i,t} * \textit{Below-peers}_{i,t} \\
& + \lambda_7 \textit{Below-peers}_{i,t} \\
& + \lambda_8 \textit{D\_NEG}_{i,t} + \lambda_9 \textit{Controls}_{i,t} + \textit{Year and industry fixed effects} \\
& + \varepsilon_{i,t} \qquad (1)
\end{aligned}
$$

The dependent variable is *Target revision*$_{i,t+1}$, which is defined as (*Target EPS*$_{i,t+1}$ − *Target EPS*$_{i,t}$) divided by *Target EPS*$_{i,t}$. *Target deviation*$_{i,t}$ captures how much past actual performance exceeded performance target, and defined as (*Actual EPS*$_{i,t}$ − *Target EPS*$_{i,t}$) divided by *Target EPS*$_{i,t}$. I include an indicator variable for unfavorable performance variances, *D_NEG*$_{i,t}$, and its interaction with *Target deviation*$_{i,t}$ to capture ratcheting asymmetry (Leone and Rock 2002, Kim and Shin 2016). *D_NEG*$_{i,t}$ takes 1 if *Target deviation*$_{i,t}$ is negative, and 0 otherwise.

The first main variable of interest is *Relative-to-peers*$_{i,t}$, which I define as the firm's basic EPS for year *t* less industry peers' average basic EPS for year *t*. To match peers to firm *i*, I construct industry-size-matched peer portfolios, following Albuquerque (2009). Here, definition of RTS in my paper differentiates from Aranda et al.(2014) which operationalize RTS by relative target difficulty.[8] Compared to relative target difficulty, relative actual performance is more appropriate measure to test efficient contracting theories and goal setting theory. Efficient contracting theories, including intrinsic productivity argument and separating contracts argument, suggest firms reduce information asymmetry on "actual" productivity or "actual" performance, rather than information about target itself. Goal setting theory

[8] Aranda et al.(2014) defined RTS by "relative target difficulty" rather than relative performance. Relative target difficulty is measured by business unit's target in year *t* less peer units' average actual performance in year *t*, scaled by peer average performance in year *t*.

suggests that firms in financial distress encourage short-term performance. Relative financial status is captured by actual relative performance, rather than target difficulty. The coefficient of the main variable, λ_5, presents how relative performance of year *t* affects next year's target revision.

The second main variable of interest is interaction term $Relative\text{-}to\text{-}peers_{i,t} \times Below\text{-}peers_{i,t}$.[9] $Below\text{-}peers_{i,t}$ is dummy a variable which takes 1 if $Relative\text{-}to\text{-}peers_{i,t}$ is negative and takes 0 if $Relative\text{-}to\text{-}peers_{i,t}$ is positive or zero. The interaction term $Relative\text{-}to\text{-}peers_{i,t} \times Below\text{-}peers_{i,t}$ presents how the effects of $Relative\text{-}to\text{-}peers_{i,t}$ on $Target\ revision_{i,t+1}$ differs depending on relative position under which firm belongs to. I predict that λ_5 shows negative sign and λ_6 show positive sign, supporting alleviated target revision for superior relative performance and tightened target revision for inferior relative performance. Economic rents explanation and intrinsic productivity explanation predicts mitigated target revision with increase in relative performance(λ_5). Economic rents explanation and goal setting theory predict the asymmetric use of relative performance in target revision(λ_6).

Following two terms capture the indirect effects of relative performance on target revision. $Relative\text{-}to\text{-}peers_{i,t} \times Target\ deviation_{i,t}$ captures the effect of relative performance on target ratcheting. This interaction term corresponds to $RTS_{i,t-1} \times (A_{i,t-1} - B_{i,t-1})/B_{i,t-1}$ in Aranda et al.(2014). $Relative\text{-}to\text{-}peers_{i,t} \times Target\ deviation_{i,t} \times$

[9] I also operationalize alternative variable, which is categorical variable. $Low\text{-}profit\text{-}group_{i,t}$ takes value one of 1,2,3,4. I divide $Relative\text{-}to\text{-}peers_{i,t}$ of samples into quartiles. I assign value of 1 to $Low\text{-}profit\text{-}group_{i,t}$ for highest quartile group, 2 for second highest quartile group, 3 for third highest quartile group, 4 for lowest quartile group.

$D\_NEG_{i,t}$ corresponds to $RTS_{i,t-1} \times D_{i,t-1} \times (A_{i,t-1} - B_{i,t-1})/B_{i,t-1}$ in Aranda et al.(2014) and captures the effect of relative performance on ratchet asymmetry. I believe that two variables in Aranda et al. (2014) are controlled and then only I can test the effects of relative performance information itself on target revision(λ_5) and asymmetric use of the information(λ_6). I predict that λ_3 shows negative sign and λ_4 show positive sign, consistent with Aranda et al. (2014) findings.

Prior studies (Indjejikian et al. 2014b, Aranda et al. 2014, Kim and Shin 2016) suggest that the relation between target revisions and past performance could be attributable to firm-specific growth. To control for the effect of firm-specific growth as correlated omitted variable, I include anticipated growth in EPS ($Growth_{i,t+1}$) in my model. Specifically, I measure $Growth_{i,t+1}$ as the predicted value from the following model:

$$\begin{aligned} EPS\ growth_{i,t+1} = {} & \alpha_0 + \alpha_1 Past\ EPS\ growth_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 EP_{i,t} + \alpha_4 Leverage_{i,t} \\ & + \alpha_5 MKT_{i,t} + \alpha_6 RD_{i,t} + \alpha_7 CAP_{i,t} + \alpha_8 BTM_{i,t} + \alpha_9 Div\ yield_{i,t} \\ & + \alpha_{10} Past\ RET_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

The dependent variable is $EPS\ growth_{i,t+1}$, which is defined as the EPS growth between year t and t+1. Following studies on determinants of accounting earnings growth (Chan et al. 2003, Ciftci and Cready 2011, Gong and Li 2013), I estimated EPS growth prediction using past growth in EPS over the previous 3 years (*Past EPS growth*), the natural logarithm of the market value of equity (*Size*), the earnings-to-price ratio (*EP*), leverage (*Leverage*), advertising expenses divided by sales (*MKT*), the average of R&D expenses divided by sales over the previous 3 years (*RD*), the average of capital expenditures divided by total assets over the previous 3 years (*CAP*), the book-to-market ratio (*BTM*), the dividend yield ratio (*Div yield*), and stock returns over the past 12 months (*Past RET*). I estimate

Equation (2) by groups of two-digit SIC code group in each fiscal year. I also include firms' stock returns ($Ret_{i,t}$) to control for potential investment opportunities or future growth. If I assume stock returns reflect all publicly available information, I can mitigate the possibility that results are driven by potential investment opportunities not captured by $Growth_{i,t+1}$. $Ret_{i,t}$ is the firm's stock returns over the 12-month period that ends 3 months after fiscal year-end *t*.

I additionally include $MTB_{i,t-1}$, $lnDELTA_{i,t}$, $lnBONUS\_EQUITY_{i,t}$, $CEOchair_{i,t}$, $Tenure_{i,t}$, $SIZE_{i,t-1}$ as control variables. Earnings-based incentives are known to encourage managerial short-termism (Healy 1985, Dechow and Sloan 1991, Gaver, Gaver, and Austin 1995, Holthausen et al. 1995, Guidry, Leone, and Rock 1999, Bhojraj and Libby 2005, Comprix and Muller 2006). Strong incentives from equity-based compensation can attenuate such short-termism, hence, adverse incentive problem arising from target ratcheting becomes less significant. Firms with greater proportion of equity-based compensation would show different target setting behavior for annual bonus, for example, mitigated ratchet asymmetry. To control for these effects, I included $lnDELTA_{i,t}$, $lnBONUS\_EQUITY_{i,t}$. Variable $lnDELTA_{i,t}$ is natural log of delta, and $lnBONUS\_EQUITY_{i,t}$ is natural log of total amount of non-equity incentive divided by total amount of equity-based compensation. Growth opportunity also can affect target setting behavior. Growth firms tend to have higher level of information asymmetry between executives and the board (Smith and Watts 1992, Coles, Daniel, and Naveen 2008). These firms have greater need for safety devices in target setting (i.e. ratchet asymmetry), so I control for market-to-book ratio. CEO characteristic are also known to affect compensation. CEO who is close to retire is more likely to have myopic behavior (Kalyta 2009). Further, CEO with longer tenure has greater influence on board (Hill and Phan 1991). To control for effects of CEO horizon and CEO power, I included $CEOchair_{i,t}$ and $Tenure_{i,t}$.

3.2.2. Research Design to Test Real Driving Power of RTS (H2)

I examine determinants of serial correlation in target deviation, to figure out which explanations are more consistent with empirical evidence among intrinsic productivity, separating equilibrium, rent extraction by powerful CEO, and short-termism under financial distress. I examine three potential determinants that affect both RTS and serial correlation: manager ability, CEO power, financial distress. Specifically, I estimate the following OLS regression to test H2a, i.e., whether manager ability affects the association between relative performance and serial correlation of target deviation:

$$
\begin{aligned}
\textit{Target deviation}_{i,t+1} = {} & \lambda_0 + \lambda_1 \textit{Target deviation}_{i,t} \\
& + \lambda_2 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \\
& + \lambda_3 \textit{Relative-to-peers}_{i,t} \times \textit{High MA}_{i,t} \times \textit{Target deviation}_{i,t} \\
& + \lambda_4 \textit{Relative-to-peers}_{i,t} \times \textit{High MA}_{i,t} \\
& + \lambda_5 \textit{Target deviation}_{i,t} \times \textit{High MA}_{i,t} \\
& + \lambda_6 \textit{Relative-to-peers}_{i,t} + \lambda_7 \textit{High MA}_{i,t} + \varepsilon_{i,t} \qquad (3)
\end{aligned}
$$

I measure manager ability with managerial ability score developed in Demerjian, Lev, and McVay (2012). Demerjian et al. (2013) develops decile rank of manager ability, which spans from 0.1 to 1.0 with the interval of 0.1. I assign value of 1 to dummy variable $\textit{High MA}_{i,t}$, for managers with rank from 0.8 to 1.0. I assign value of 0 to $\textit{High MA}_{i,t}$, for managers with rank from 0.1 to 0.3. Interaction term $\textit{Relative-to-peers}_{i,t} \times \textit{High MA}_{i,t} \times \textit{Target deviation}_{i,t}$ presents how RTS differs when manager has high productivity. I expect λ_3 to show positive sign, given separating contractual equilibrium has significant explanatory power. According to contracting theory, only high-profitability managers earn informational rents under separating equilibrium of contracts, while low-profitability managers earn no rents. Intrinsic productivity explanation predicts insignificant sign on λ_3. If firms fully exploit all information sources available (e.g. prior performance, relative performance, analyst forecasts etc.) in setting performance targets, target difficulty remains consistent over periods and across managers with different ability.

Next, I examine the effect of CEO power on association between RTS and serial correlation in target deviation. I measure CEO power by tenure. Newly appointed CEO begin with high vulnerability of status. However, CEO expands its influence on board over time, since CEO can populate boards with its own nominees (Frederikson, Hambrick, and Baumrin 1988, Hill and Phan 1991). CEO also gradually gain controls over internal information systems, thus withhold disadvantageous information from compensation committee (Coughlan and Schmidt 1985, Hill and Phan 1991). I estimate following OLS regression to test the effects of CEO power:

$$\begin{aligned} \textit{Target deviation}_{i,t+1} = {} & \lambda_0 + \lambda_1 \textit{Target deviation}_{i,t} \\ & + \lambda_2 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \\ & + \lambda_3 \textit{Relative-to-peers}_{i,t} \times \textit{Tenure}_{i,t} \times \textit{Target deviation}_{i,t} \\ & + \lambda_4 \textit{Relative-to-peers}_{i,t} \times \textit{Tenure}_{i,t} \\ & + \lambda_5 \textit{Target deviation}_{i,t} \times \textit{Tenure}_{i,t} \\ & + \lambda_6 \textit{Relative-to-peers}_{i,t} + \lambda_7 \textit{Tenure}_{i,t} + \varepsilon_{i,t} \qquad (4) \end{aligned}$$

I expect λ_3 show positive sign, given rent extraction view holds. Intrinsic productivity explanation predicts insignificant sign on λ_3.

Lastly, I examine the effect of financial distress on association between RTS and serial correlation in target deviation. I measure financial distress by one-year lagged loss. I estimate following OLS regression to test the effects of CEO power:

$$
\begin{aligned}
\textit{Target deviation}_{i,t+1} = {} & \lambda_0 + \lambda_1 \textit{Target deviation}_{i,t} \\
& + \lambda_2 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \\
& + \lambda_3 \textit{Relative-to-peers}_{i,t} \times \textit{Loss}_{i,t-1} \times \textit{Target deviation}_{i,t} \\
& + \lambda_4 \textit{Relative-to-peers}_{i,t} \times \textit{Loss}_{i,t-1} + \lambda_5 \textit{Target deviation}_{i,t} \times \textit{Loss}_{i,t-1} \\
& + \lambda_6 \textit{Relative-to-peers}_{i,t} + \lambda_7 \textit{Loss}_{i,t-1} + \varepsilon_{i,t} \qquad (5)
\end{aligned}
$$

I expect λ_3 show negative sign, given goal setting theory's prediction holds.

Firms trying to concentrate managerial efforts on short-term earning would set tighter targets on annual bonus.

4. Descriptive Statistics

Table 1 presents the descriptive statistics for main variables, including *Target revision*$_{i,t+1}$, *Target deviation*$_{i,t}$, *Relative-to-peers*$_{i,t}$, *High MA*$_{i,t}$, *Tenure*$_{i,t}$, *Loss*$_{i,t-1}$, and several firm characteristics. For easier interpretation, I also present the descriptive statistics of the unscaled variables: (*Target EPS*$_{i,t+1}$ – *Target EPS*$_{i,t}$), (*Actual EPS*$_{i,t}$ – *Target EPS*$_{i,t}$), and (*Analyst forecast*$_{i,t+1}$ – *Actual EPS*$_{i,t}$). The median (mean) values of (*Target EPS*$_{i,t+1}$ – *Target EPS*$_{i,t}$) and *Target revision*$_{i,t+1}$ are \$0.210 (\$0.214) and 9.7% (10.7%), respectively, suggesting that EPS targets are revised upward by 21.0 cents (9.7% of prior target EPS) on average. The median of (*Actual EPS*$_{i,t}$ – *Target EPS*$_{i,t}$) is \$0.060, while the actual EPS is on average 2.7% higher than the target (i.e., *Target deviation*$_{i,t}$), indicating that actual performance is, on average, slightly higher than the target. The median(mean) value of *Relative-to-peers*$_{i,t}$ is \$0.621(\$0.778), indicating that EPS performance is on average 62.1 cents higher than peers' average EPS performance. Mean value of *Below-peers*$_{i,t}$ is 0.327, indicating 32.7%(67.3%) of samples performed worse(better) than peers' average performance. I report raw values of *DELTA*$_{i,t}$, *BONUS_EQUITY*$_{i,t}$, but I use natural log of these variables in regressions.

[Insert Table 1 here]

Table 2 provides the correlation matrix of main variables. *Target EPS*$_{i,t+1}$ − *Target EPS*$_{i,t}$ is positively correlated with *Actual EPS*$_{i,t}$ − *Target EPS*$_{i,t}$, consistent with prior studies' finding that target revision occurs in same direction with past deviation from targets. *Target EPS*$_{i,t+1}$ − *Target EPS*$_{i,t}$ is also positively correlated with *Relative-to-peers*$_{i,t}$.

[Insert Table 2 here]

5. Empirical Results

5.1. Performance-dependent Asymmetry of Relative Target Setting(H1)

Table 3 reports the results of estimating Equation (1). Column (1) of Table 3 shows the replication of Aranda et al. (2014) with my samples. Following results are consistent with Aranda et al.(2014) Table 6[10]. I find significant and negative association between *Relative-to-peers*$_{i,t}$ and *Target revision*$_{i,t+1}$, confirming firms do consider peer performance information in revising targets. Coefficient on *Relative-to-peers*$_{i,t}$× *Target deviation*$_{i,t}$ is significant and negative, suggesting firms alleviate target revision as relative performance increases. Coefficient on *Relative-to-peers*$_{i,t}$× *Target deviation*$_{i,t}$× *D_NEG*$_{i,t}$ is significant and positive, suggesting firms alleviate ratchet asymmetry as relative performance increases. Column (2) shows the replication of Aranda et al. (2014) with control variables which I include in Equation (1). Results are consistent with Aranda et al. (2014) and Column (1).

Column (3) of Table 3 provides the estimation results of equation (1). The coefficient on *Relative-to-peers*$_{i,t}$ is negative and significant, suggesting that firms alleviate future targets as relative performance increases. The coefficient on *Relative-to-peers*$_{i,t}$ × *Below-peers*$_{i,t}$ is positive and significant, suggesting that alleviating effect of relative performance weakens for low-profitability managers. Against null hypothesis that aggregated effects of *Relative-to-peers*$_{i,t}$ and *Relative-to-peers*$_{i,t}$ × *Below-peers*$_{i,t}$ equals to zero, F-statistics[11] cannot reject null hypothesis. In other words, low-profitability managers are not compensated for marginal

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[10] Aranda et al. (2014) use proprietary data from 376 branches of a large travel retailer company. They operationalized RTS by relative target difficulty, which captures relative difficulty of a unit's prior target compared to actual average performance of peer units.

[11] I cannot reject null hypo with Prob > F = 0.4599.

increase of relative performance. This result is consistent with prediction of separating contractual equilibrium story which argues only high-profitability managers earns economic rents. These results also indicate firms with low-profitability are more likely to set tighter targets for short-term performance, supporting prediction of goal setting theory.

Column (4) and Column (5) of Table 3 provides subsample tests results. As an alternative model specification, I excluded interaction term $\textit{Relative-to-peers}_{i,t}$ × $\textit{Below-peers}_{i,t}$ from Equation (1) and regressed reduced model with each subsample of above-peers groups and below-peers groups. Above-peers groups are samples with EPS performance superior to peers' average performance ($\textit{Below-peers}_{i,t}$=0) while below-peers groups are samples with EPS performance inferior to peers' average performance ($\textit{Below-peers}_{i,t}$=1). Coeffient on $\textit{Relative-to-peers}_{i,t}$ is negative and significant for above-peers samples in Column (4), while insignificant for below-peers samples in Column (5). Difference between coefficients is statistically significant.[12]

[Insert Table 3 here]

5.2. Real Driving Power of RTS: Tests on Determinants of Serial Correlation(H2)

Table 4 reports the results of estimating Equation (3), (4), and (5). Panel A of Table 4 reports the full-sample test results, and Panel B reports the subsample test

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[12] chi^2 statistics with 1 degree of freedom is 9.08. Prob>chi^2 is 0.0026, rejecting null hypo(H_0: Coefficients on $\textit{Relative-to-peers}_{i,t}$ (-0.0246*** in Column (4) and 0.0295 in Column (5)) are not different between above-peers samples and below-peers samples).
$\textit{Target deviation}_{i,t}$ and $\textit{Target deviation}_{i,t}$ $\textit{*D\_NEG}_{i,t}$ are not statistically different between column (4) and (5), with $chi^2(1) = 2.32$ and Prob > $chi^2 = 0.1278$, and $chi^2(1) = 0.39$ and Prob > $chi^2 = 0.5311$, respectively.

results. Subsample tests are regressed with above-peers samples (*Below-peers*$_{i,t}$=0) and below-peers (*Below-peers*$_{i,t}$=1), respectively. Column (1) of Panel A describes that the serial correlation between target deviation in year *t* and *t+1* is positive and significant, consistent with previous findings (Indjejikian et al. 2014a, Kim and Shin 2016). Column (2) of Panel A shows the full sample test result of estimating Equation (3). Coefficient on *Relative-to-peers*$_{i,t}$× *High MA*$_{i,t}$× *Target deviation*$_{i,t}$ is insignificant. In Panel B, column (1) and (2) are subsample tests of manager ability with above-peers samples and below-peers samples, respectively. Coefficient on *Relative-to-peers*$_{i,t}$× *High MA*$_{i,t}$× *Target deviation*$_{i,t}$ is also insignificant in both columns, suggesting manager ability does not act as mediator of serial correlation. In short, full-sample and subsample test results are inconsistent with separating equilibrium hypothesis which predicts informational rents only for high-productivity managers. This suggests the need to re-examine efficient contracting assumption in target setting literature.

Column (3) of Panel A shows the full-sample test results of estimating Equation (4). Coefficient on *Relative-to-peers*$_{i,t}$× *Tenure*$_{i,t}$× *Target deviation*$_{i,t}$ is positive and significant, supporting rent extraction view. Serial correlation increases with longer CEO tenure. In Panel B, column (3) and (4) are subsample tests of CEO tenure with above-peers samples and below-peers samples, respectively. Coefficient on *Relative-to-peers*$_{i,t}$× *Tenure*$_{i,t}$× *Target deviation*$_{i,t}$ is positive and significant for above-peers groups in column (3), while insignificant for below-peers groups in column (4). That is, superior relative performance leads to higher serial correlation for powerful CEO. Even though CEO has power, relative performance does not lead to higher serial correlation if the performance was inferior to peers. Powerful CEOs earn economic rents only when they outperformed peers. In short, CEO power acts as mediator of serial correlation in certain situation. Full-sample test and subsample tests generally support rent extraction view, and are less consistent with efficient contracting view including intrinsic productivity and separating contractual equilibrium.

Column (4) of Panel A shows the full-sample test results of estimating Equation (5). Coefficient on $\textit{Relative-to-peers}_{i,t} \times \textit{Loss}_{i,t-1} \times \textit{Target deviation}_{i,t}$ is negative and significant, supporting goal setting theory. Firms experiencing loss in prior year are more likely to set tighter targets for annual bonus next year. In Panel B, column (5) and (6) are subsample tests of lagged loss with above-peers samples and below-peers samples, respectively. Coefficient on $\textit{Relative-to-peers}_{i,t} \times \textit{Loss}_{i,t-1} \times \textit{Target deviation}_{i,t}$ is insignificant for both subsamples. That is, superior relative performance leads to higher serial correlation for powerful CEO. I expected negative effect of loss would intensify for below-peers firms, since they are even more urgent to boost up short-term earning than above-peers firms experiencing loss. Potential reason of insignificance is low power of test, since there are only 72 firm-years experiencing loss among total sample. Interacting with below-peers dummy would reduce power of test even lower. To sum up, full-sample test result indicates firms tend to encourage short-termism under financial distress, supporting the goal setting theory.[13]

[Insert Table 4 here]

---

[13] The relation between serial correlation and determinants could be driven by firm's productivity. Even though untabulated, I also conduct same tests of Panel A with 1-year lagged ROA included to control for firm productivity. The results are qualitatively similar to those of Panel A. I deeply thank to professor Iny Hwang for the comment.

6. Robustness Tests

I conduct several robustness checks. First, I estimate Equation (1) with alternative measure of $Below\text{-}peers_{i,t}$ dummy. Instead of dummy variable, I also operationalize alternative variable, which is categorical variable. $Low\text{-}profit\text{-}group_{i,t}$ takes value one of 1,2,3,4. I divide $Relative\text{-}to\text{-}peers_{i,t}$ of samples into quartiles, instead of binary group. I assign value of 1 to $Low\text{-}profit\text{-}group_{i,t}$ for highest quartile group, 2 for second highest quartile group, 3 for third highest quartile group, 4 for lowest quartile group. This way, difference in RTS depending on relative performance are revealed more clearly. Table 5 reports the results, and results are consistent with Table 3.

I also conduct different way of testing serial correlation. I alternatively estimated PROBIT regression using indicator variable of target meeting, instead of target deviation variable. $Target\ Meet_{i,t}$ variable takes 1 if firm *i* meet the target in year *t*, and takes 0 otherwise. Indicator variable has been used in previous studies in target ratcheting (Indjejikian and Nanda 2002, Indjejikian et al. 2014a, Kim and Shin 2016). Further, instead of Equation (3) to (5), I used more simplified model specification below. This way, I can more easily interpret the effect of manager ability and CEO power. Using Equation (6), I conduct subsample tests of PROBIT regression. Results are reported under Table 6.

$$\begin{aligned} Target\ Meet_{i,t+1} = \lambda_0 &+ \lambda_1\, Target\ Meet_{i,t} \\ &+ \lambda_2\, Relative\text{-}to\text{-}peers_{i,t} \times Target\ Meet_{i,t} \\ &+ \lambda_3\, Relative\text{-}to\text{-}peers_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{6}$$

Coefficients on $Relative\text{-}to\text{-}peers_{i,t} \times Target\ Meet_{i,t}$ do not show difference in significance between column (1) and (2), confirming that manager ability does not affect association between RTS and serial correlation of target meeting. Coefficient on $Relative\text{-}to\text{-}peers_{i,t} \times$ $Target\ Meet_{i,t}$ in column (3) is significant and positive, suggesting CEOs with longer tenure face higher propensity to meet target successively if they outperform peers. However, coefficient on $Relative\text{-}to\text{-}peers_{i,t} \times$ $Target\ Meet_{i,t}$ in column (4) is insignificant, confirming that CEOs with shorter tenure do not face increase in probability to meet target successively even though they outperform peers. Coefficients on $Relative\text{-}to\text{-}peers_{i,t} \times$ $Target\ Meet_{i,t}$ in column (6) is not significant, even though I expected negative sign. Potential reason of insignificance could be low power of test due to limited sample.

7. Conclusion

To summarize, my paper finds following results. First, firms asymmetrically reflect peer information in target revision depending on relative performance. Specifically, high-profitability firms more actively reflect peer information, leading to generous targets in the future. In contrast, low-profitability firms less actively reflect peer information, leading to tighter targets than outperforming peers. Second, association between relative performance and serial correlation of target deviation is more pronounced with greater managerial power. However, manager ability does not influence on association between relative performance and target deviation. This result is more consistent with rent extraction view as the latent economic power which causes RTS and serial correlation.

My paper has following contributions. First, it expands the understanding on relative target setting, providing asymmetric use of RTS depending on relative performance. This paper offers a more detailed picture of the target setting process. When firms exploit certain source of information in target setting, they reflect the information adaptively to firm situation, considering complex incentive effects of targets. Marginal increase of relative performances leads to generous targets in next period, but such prize is not available when firm performance was worse than peers. My paper suggests firms exercise such adaptive use of information not only with prior performance information, but also with peer performance information.

Second, my paper suggests potential mediators of serial correlation of target deviation. Serial correlation in target deviation increases under longer CEO tenure. Effects of CEO tenure varies by relative performance. This suggest target ratcheting interacts not only with equity compensation or growth opportunity (Kim and Shin,

2016) but also with CEO power.

My paper attempts to verify fundamental assumptions in target ratcheting literature. Prior studies implicitly assume target setting practice is consequence of BOD’s optimal contracting. Both informational rents explanation by Indjejikian et al. (2014a) and intrinsic productivity explanation by Aranda et al. (2014) are based on this optimal contracting assumption. Especially, economic rents have been considered *ex ante* optimal and beneficial to principal, both in theories and empirical studies. I re-examined whether this traditional belief is sufficiently credible. Serial correlation test results imply that rents are partially driven by CEO power, supporting rent extraction view rather than optimal contracting view. Although empirical studies on target setting extensively investigated “how” targets are set, but “why” questions have been relatively limited. My paper fills this void, suggesting prior studies’ optimal contracting assumption needs to be re-examined.

REFERENCE

Albuquerque, A. 2009. Peer firms in relative performance evaluation. ***Journal of Accounting and Economics***
48 (1): 69–89.

Aranda, C., J. Arellano, and A. Davila. 2014. Ratcheting and the role of relative target setting. ***The Accounting Review*** 89 (4): 1197–226.

Bertrand, M., and S. Mullainathan. 2001. Are CEOs rewarded for luck? The ones without principals are. ***Quarterly Journal of Economics*** 116 (3): 901-932.

Bhojraj, S., and R. Libby. 2005. Capital market pressure, disclosure frequency-induced earnings/cash flow conflict, and managerial myopia. ***The Accounting Review*** 80 (1): 1–20.

Bol, J. C., and J. Lill. 2015. Performance target revisions in incentive contracts: Do information and
trust reduce ratcheting and the ratchet effect? ***The Accounting Review*** 90 (5): 1755–78.

Bouwens, J., and P. Kroos. 2011. Target ratcheting and effort reduction. ***Journal of Accounting and Economics*** 51 (1/2): 171–85.

Bouwens, J., and P. Kroos. 2016. The Interplay Between Forward-Looking Measures and Target Setting. ***Management Science***.

Comprix, J., and K. Muller. 2006. Asymmetric treatment of reported pension expenses and income amounts in CEO cash compensation calculations. ***Journal of Accounting and Economics,*** 42 (3):385–416.

Coles, J. L., N. D. Daniel, and L. Naveen. 2006. Managerial incentives and risk-taking. ***Journal of Financial Economics*** 79 (2): 431–68.

Coughlan, A. T., & Schmidt, R. M. 1985. Executive compensation, managerial turnover, and firm performance. ***Journal of Accounting and Economics,*** 7: 43-66.

Core, J. E., Holthausen, R. W., & Larcker, D. F. 1999. Corporate governance, chief executive officer compensation, and firm performance. ***Journal of financial economics***, *51*(3), 371-406.

Dechow, P. M., and R. Sloan. 1991. Executive incentives and the horizon problem: An empirical investigation. ***Journal of Accounting and Economics*** 14 (1): 51–89.

Demerjian, P., Lev, B., & McVay, S. (2012). Quantifying managerial ability: A new measure and validity tests. ***Management Science***, 58(7), 1229-1248.

Erez, M., & Zidon, I. 1984. Effects of goal acceptance on the relationship of goal setting and task performance. ***Journal of Applied Psychology***,*69,* 69–78.

Finkelstein, S., & Hambrick, D. C. 1989. Chief executive compensation: A study of the intersection of markets and political process. ***Strategic Management Journal,*** 10: 121-134.

Gaver, J., K. Gaver, and J. Austin. 1995. Additional evidence on bonus plans and income management. ***Journal of Accounting and Economics*** 19 (1): 3–28.

Gilson, Stuart, Kose John, and Larry Lang, 1990, Troubled debt restructuring: An empirical study of private reorganization of firms in default, ***Journal of Financial Economics*** 27, 315-354.

Guidry, F., A. J. Leone, and S. Rock. 1999. Earnings-based bonus plans and earnings management by business-unit managers. ***Journal of Accounting and*** Economics 26 (1–3): 113–42.

Gong J, Li, J. Shin. 2013. CEO incentives and earnings prediction. ***Review of Quantitative Finance Accounting*** 40:647-674.

Healy, P. M. 1985. The effect of bonus schemes on accounting decisions. ***Journal of Accounting and Economics*** 7 (1/2/3): 85–107.

Herman, E. S. 1981. Corporate control, corporate power**.** New York: Gambridge University Press.

Hill, C. W., & Phan, P. 1991. CEO tenure as a determinant of CEO pay. ***Academy of Management journal***, *34*(3), 707-717.

Holthausen, R., D. Larcker, and R. Sloan. 1995. Annual bonus schemes and the manipulation of earnings. ***Journal of Accounting and Economics*** 19 (1): 29–74.

Indjejikian, R. J., and M. Matejka. 2006. Organizational slack in decentralized firms: The role of business unit controllers. ***The Accounting Review*** 81 (4): 849–72.

Indjejikian, R. J., M. Matejka, K. A. Merchant, and W. A. Van der Stede. 2014a. Earnings targets and annual bonus incentives. ***The Accounting Review*** 89 (4): 1227–58.

Indjejikian, R. J., M. Matejka, and J. D. Schloetzer. 2014b. Target ratcheting and incentives: Theory, evidence, and new opportunities. ***The Accounting Review*** 89 (4): 1259–67.

Indjejikian, R. J., and D. Nanda. 2002. Executive target bonuses and what they imply about performance standards. ***The Accounting Review*** 77 (4): 793–819.

John, Kose, Larry Lang, and Jeff Netter, 1992, Voluntary restructuring of large firms in response to performance decline, ***Journal of Finance*** 47, 891-918.

Kalyta, P. 2009. Accounting discretion, horizon problem, and CEO retirement benefits. ***The Accounting Review*** 84 (5): 1553–73.

Kim S, Shin J. 2016. Executive bonus target ratcheting: Evidence from the new executive compensation disclosure rules. ***Contemporary Accounting Research***., Forthcoming.

Laffont J, Tirole J. 1993. A Theory of Incentives in Procurement and Regulation. ***Cambridge, MA: The MIT Press***.

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

Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. Goal setting and task performance.

Psychological Bulletin, 1981, 90, 125-152.

Locke, E. A., & Latham, G. P. 2002. Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. ***American psychologist***, *57*(9), 705.

Mace, M. L. 1971. Directors: Myth and reality. ***Boston: Graduate School of Business Administration.***

Meyer, M. A., and J. Vickers. 1997. Performance comparisons and dynamic incentives. ***Journal of Political Economy*** 105 (3): 547–581.

Milgrom, P., and J. Roberts. 1992. Economics, organizations and management. ***Englewood Cliffs, NJ: Prentice Hall***.

Ofek, E. 1993. Capital structure and firm response to poor performance: An empirical analysis. ***Journal of financial economics***, *34*(1), 3-30.

Pfeffer, J. 1972. Size and composition of corporate boards of directors: The organization and its environment. ***Administrative Science Quarterly,*** 17: 218-228.

Smith, C. W., and R. L. Watts. 1992. The investment opportunities set and corporate financing, dividend, and compensation policies. ***Journal of Financial Economics*** 32 (3): 263–92.

Vance, S. G. 1983. Corporate leadership: Boards of directors and strategy. ***New York: Mc-Graw-Hill.***

Van Essen, M., Otten, J., & Carberry, E. J. (2015). Assessing managerial power theory: A meta-analytic approach to understanding the determinants of CEO compensation. ***Journal of Management***, *41*(1), 164-202.

Weitzman M. 1980. The ratchet principle and performance incentives. ***The 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.

Figure 1

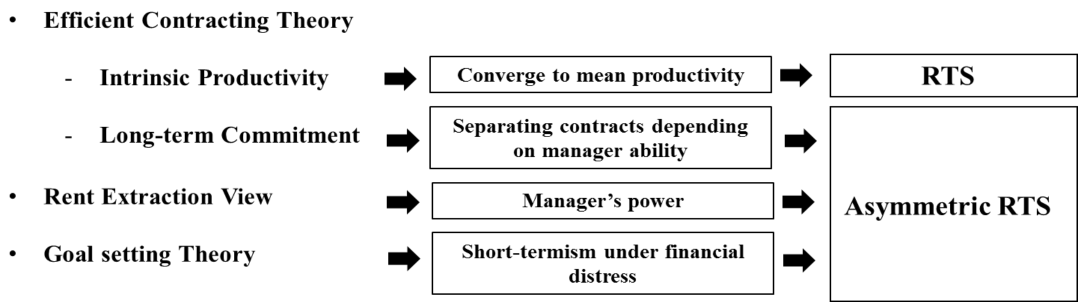

Figure 2

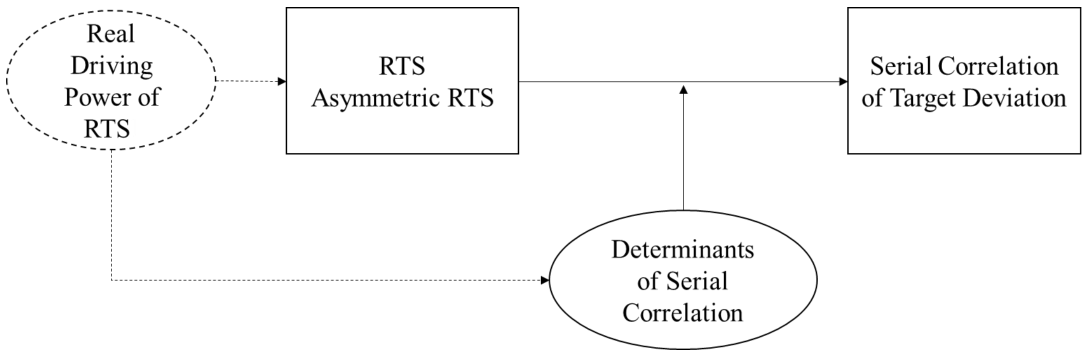

TABLE 1

Descriptive Statistics

Measure	N	Mean	Q1	Median	Q3	Std Dev
Target EPS$_{i,t+1}$−Target EPS$_{i,t}$	1206	0.214	-0.040	0.210	0.490	0.887
Target revision$_{i,t+1}$	1206	0.107	-0.021	0.097	0.224	0.288
Actual EPS$_{i,t}$−Target EPS$_{i,t}$	1206	0.013	-0.080	0.060	0.230	0.840
Target deviation$_{i,t}$	1206	0.021	-0.040	0.027	0.111	0.218
D_NEG$_{i,t}$	1206	0.345	0.000	0.000	1.000	0.476
Relative-to-peers$_{i,t}$	1206	0.778	-0.295	0.621	1.636	1.626
Below-peers$_{i,t}$	1206	0.327	0.000	0.000	1.000	0.469
Low-profit-group$_{i,t}$	1206	2.501	1.000	2.500	4.000	1.120
Ret $_{i,t}$	1206	0.146	-0.079	0.137	0.333	0.341
Growth$_{i,t+1}$	1206	0.079	-0.356	0.124	0.584	0.948
MTB$_{i,t-1}$	1206	1.819	1.193	1.539	2.112	0.961
DELTA$_{i,t}$	1144	716.368	117.097	302.895	728.707	1480.110
BONUS_EQUITY$_{i,t}$	1125	0.459	0.179	0.339	0.578	0.494
CEOchair$_{i,t}$	1206	0.637	0.000	1.000	1.000	0.481
Tenure$_{i,t}$	1206	9.452	4.000	8.000	12.000	7.546
AT per share$_{i,t-1}$	1206	53.771	21.370	36.214	60.807	72.417

TABLE 2

Correlation Matrix

	$Target\ EPS_{i,t+1} - Target\ EPS_{i,t}$	$Actual\ EPS_{i,t} - Target\ EPS_{i,t}$	$D\_NEG_{i,t}$	$Relative\text{-}to\text{-}peers_{i,t}$	$Below\text{-}peers_{i,t}$	$Ret_{i,t}$	$Growth_{i,t+1}$
$Target\ EPS_{i,t+1} - Target\ EPS_{i,t}$	1	0.67962	-0.55134	0.19087	-0.14762	0.29856	0.03898
		<.0001	<.0001	<.0001	<.0001	<.0001	0.1761
$Actual\ EPS_{i,t} - Target\ EPS_{i,t}$	0.67962	1	-0.82339	0.25915	-0.19593	0.23675	-0.01846
	<.0001		<.0001	<.0001	<.0001	<.0001	0.5218
$D\_NEG_{i,t}$	-0.55134	-0.82339	1	-0.12808	0.1268	-0.22447	-0.00988
	<.0001	<.0001		<.0001	<.0001	<.0001	0.7318
$Relative\text{-}to\text{-}peers_{i,t}$	0.19087	0.25915	-0.12808	1	-0.81237	-0.04759	-0.04486
	<.0001	<.0001	<.0001		<.0001	0.0985	0.1195
$Below\text{-}peers_{i,t}$	-0.14762	-0.19593	0.1268	-0.81237	1	0.02995	0.08389
	<.0001	<.0001	<.0001	<.0001		0.2986	0.0036
$Ret_{i,t}$	0.29856	0.23675	-0.22447	-0.04759	0.02995	1	0.23842
	<.0001	<.0001	<.0001	0.0985	0.2986		<.0001
$Growth_{i,t+1}$	0.03898	-0.01846	-0.00988	-0.04486	0.08389	0.23842	1
	0.1761	0.5218	0.7318	0.1195	0.0036	<.0001	

This table shows the correlations and the significance level among the key variables. The sample is 1,206 firm-year observations for the 2006-2014 period.

TABLE 3

Tests of Performance-dependent Asymmetry in Relative Target Setting(H1)

$$\begin{aligned} \textit{Target revision}_{i,t+1} = \lambda_0 &+ \lambda_1 \textit{Target deviation}_{i,t} + \lambda_2 \textit{Target deviation}_{i,t} \times \textit{D\_NEG}_{i,t} \\ &+ \lambda_3 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \\ &+ \lambda_4 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \times \textit{D\_NEG}_{i,t} \\ &+ \lambda_5 \textit{Relative-to-peers}_{i,t} + \lambda_6 \textit{Relative-to-peers}_{i,t} * \textit{Below-peers}_{i,t} \\ &+ \lambda_7 \textit{Below-peers}_{i,t} \\ &+ \lambda_8 \textit{D\_NEG}_{i,t} + \lambda_9 \textit{Controls}_{i,t} + \textit{Year and industry fixed effects} + \varepsilon_{i,t} \qquad (1) \end{aligned}$$

Dependent variable : *Target revision*$_{i,t+1}$						
		Aranda et al.(2014)		Full Sample Test	Subsample Tests	
					Above-peers	Below-peers
Independent variables	Pred.	(1)	(2)	(3)	(4)	(5)
Target deviation$_{i,t}$	+	**1.1756*****	**1.1194*****	**1.1205*****	**1.0570*****	**1.2957*****
		(17.050)	(14.651)	(14.765)	(8.651)	(10.388)
D_NEG$_{i,t}$	?	-0.0128	0.0086	0.0068	-0.0186	-0.0283
		(-0.705)	(0.423)	(0.333)	(-0.621)	(-0.679)
Target deviation$_{i,t}$ × *D_NEG*$_{i,t}$	-	**-0.5436*****	**-0.4325*****	**-0.4375*****	**-0.4409****	**-0.6076*****
		(-5.325)	(-3.720)	(-3.755)	(-2.185)	(-3.205)
Relative-to-peers$_{i,t}$	-	**-0.0167*****	**-0.0141****	**-0.0154****	**-0.0210****	0.0304
		(-2.857)	(-2.255)	(-2.051)	(-2.271)	(1.016)
Relative-to-peers$_{i,t}$ **Below-peers*$_{i,t}$	+			**0.0237****		
				(2.226)		
Below-peers$_{i,t}$	?			0.0251		
				(1.182)		
Relative-to-peers$_{i,t}$ × *Target deviation*$_{i,t}$	-	**-0.0187****	**-0.0166****	**-0.0180****	-0.0194	-0.0051
		(-2.217)	(-2.060)	(-2.021)	(-0.435)	(-0.456)
Relative-to-peers$_{i,t}$ × *Target deviation*$_{i,t}$ × *D_NEG*$_{i,t}$	+	**0.0163***	0.0135	**0.0170***	**0.1914****	-0.0050
		(1.765)	(1.623)	(1.801)	(2.167)	(-0.448)
Relative-to-peers$_{i,t}$ × *D_NEG*$_{i,t}$	?	-0.0104	-0.0086	-0.0090	0.0132	**-0.0499***
		(-1.612)	(-0.955)	(-1.000)	(0.970)	(-1.693)
Growth$_{i,t+1}$	+		**0.0139***	**0.0136***	**0.0190****	-0.0059
			(1.792)	(1.770)	(2.162)	(-0.376)
MTB$_{i,t-1}$	+		**0.0274*****	**0.0265*****	**0.0238****	**0.0419***
			(2.718)	(2.597)	(2.336)	(1.833)
lnDELTA$_{i,t}$	?		0.0081	0.0080	**0.0128***	-0.0195
			(1.182)	(1.163)	(1.688)	(-1.203)
lnBONUS_EQUITY$_{i,t}$	?		-0.0144	-0.0142	-0.0156	-0.0227
			(-1.521)	(-1.513)	(-1.360)	(-1.220)

CEOchair$_{i,t}$	**?**		-0.0133	-0.0143	**-0.0329***	0.0266
			(-0.804)	(-0.859)	(-1.830)	(0.720)
AT per share$_{i,t-1}$	**?**		0.0001	0.0002	0.0001	**0.0005****
			(0.866)	(0.989)	(0.192)	(2.520)
Ret$_{i,t}$	+		**0.1147*****	**0.1159*****	**0.1253*****	0.0567
			(4.251)	(4.279)	(3.618)	(1.028)
Tenure$_{i,t,}$	**?**		-0.0004	-0.0003	0.0006	-0.0009
			(-0.229)	(-0.193)	(0.349)	(-0.265)
Constant		**0.2243*****	0.0557	0.0657	0.0510	**0.8283*****
		(5.962)	(0.945)	(1.084)	(0.786)	(4.670)
Year fixed effects		Included	Included	Included	Included	Included
Industry fixed effects		Included	Included	Included	Included	Included
Observations		1,206	943	943	631	312
R-squared		0.5707	0.6195	0.6216	0.6344	0.7159
Adjusted R-squared		0.547	0.589	0.590	0.592	0.644

Robust t-statistics in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Standard errors are clustered by firm.

TABLE 4

Tests on Determinants of Serial Correlation(H2)

Column (2) :

$$\begin{aligned} Target\ deviation_{i,t+1} = \lambda_0 &+ \lambda_1\, Target\ deviation_{i,t} \\ &+ \lambda_2\, Relative\text{-}to\text{-}peers_{i,t} \times Target\ deviation_{i,t} \\ &+ \lambda_3\, Relative\text{-}to\text{-}peers_{i,t} \times High\ MA_{i,t} \times Target\ deviation_{i,t} \\ &+ \lambda_4\, Relative\text{-}to\text{-}peers_{i,t} \times High\ MA_{i,t} \\ &+ \lambda_5\, Target\ deviation_{i,t} \times High\ MA_{i,t} \\ &+ \lambda_6\, Relative\text{-}to\text{-}peers_{i,t} + \lambda_7\, High\ MA_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{3}$$

Column (3) :

$$\begin{aligned} Target\ deviation_{i,t+1} = \lambda_0 &+ \lambda_1\, Target\ deviation_{i,t} \\ &+ \lambda_2\, Relative\text{-}to\text{-}peers_{i,t} \times Target\ deviation_{i,t} \\ &+ \lambda_3\, Relative\text{-}to\text{-}peers_{i,t} \times Tenure_{i,t} \times Target\ deviation_{i,t} \\ &+ \lambda_4\, Relative\text{-}to\text{-}peers_{i,t} \times Tenure_{i,t} \\ &+ \lambda_5\, Target\ deviation_{i,t} \times Tenure_{i,t} \\ &+ \lambda_6\, Relative\text{-}to\text{-}peers_{i,t} + \lambda_7\, Tenure_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{4}$$

Column (4) :

$$\begin{aligned} Target\ deviation_{i,t+1} = \lambda_0 &+ \lambda_1\, Target\ deviation_{i,t} \\ &+ \lambda_2\, Relative\text{-}to\text{-}peers_{i,t} \times Target\ deviation_{i,t} \\ &+ \lambda_3\, Relative\text{-}to\text{-}peers_{i,t} \times Loss_{i,t-1} \times Target\ deviation_{i,t} \\ &+ \lambda_4\, Relative\text{-}to\text{-}peers_{i,t} \times Loss_{i,t-1} \\ &+ \lambda_5\, Target\ deviation_{i,t} \times Loss_{i,t-1} \\ &+ \lambda_6\, Relative\text{-}to\text{-}peers_{i,t} + \lambda_7\, Loss_{i,t-1} + \varepsilon_{i,t} \end{aligned} \tag{5}$$

PANEL A

Dependent variable : $Target\ deviation_{i,t+1}$				
		Manager Ability	CEO Power	Financial Distress
Independent variables	(1)	(2)	(3)	(4)
$Target\ deviation_{i,t}$	**0.0938**** (2.342)	**0.2949***** (3.670)	**0.1213**** (2.031)	**0.1002**** (2.364)
$Relative\text{-}to\text{-}peers_{i,t} \times Target\ deviation_{i,t}$		**-0.0149*** (-1.866)	-0.0008 (-0.163)	**0.0054*** (1.890)
$Relative\text{-}to\text{-}peers_{i,t} \times High\ MA_{i,t} \times Target\ deviation_{i,t}$		0.0386 (0.895)		
$Relative\text{-}to\text{-}peers_{i,t} \times Tenure_{i,t} \times Target\ deviation_{i,t}$			**0.0036*** (1.724)	
$Relative\text{-}to\text{-}peers_{i,t} \times Loss_{i,t-1} \times Target\ deviation_{i,t}$				**-0.1674***** (-3.890)
$Target\ deviation_{i,t} \times High\ MA_{i,t}$		**-0.2640**** (-2.182)		
$Tenure_{i,t} \times Target\ deviation_{i,t}$			-0.0024 (-0.437)	
$Loss_{i,t-1} \times Target\ deviation_{i,t}$				-0.0270 (-0.272)
$Relative\text{-}to\text{-}peers_{i,t} \times High\ MA_{i,t}$		-0.0002 (-0.019)		
$Relative\text{-}to\text{-}peers_{i,t} \times Tenure_{i,t}$			0.0006 (0.862)	

Relative-to-peers$_{i,t}$ × *Loss*$_{i,t-1}$				**-0.0558***** (-2.707)
Relative-to-peers$_{i,t}$		-0.0100 (-1.178)	**-0.0164**** (-2.562)	**-0.0099***** (-2.608)
High MA$_{i}$		**0.0479**** (2.348)		
Tenure$_{i,t}$			-0.0013 (-1.409)	
Loss$_{i,t-1}$				-0.0243 (-0.670)
Constant	-0.0026 (-0.411)	-0.0204 (-1.197)	0.0157 (1.382)	0.0067 (0.895)
Observations	1,070	603	1,070	1,070
R-squared	0.0087	0.0583	0.0206	0.0283
r2_a	0.00782	0.0473	0.0142	0.0219

Robust t-statistics in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Standard errors are clustered by firm.

PANEL B

Dependent variable : *Target deviation*$_{i,t+1}$						
	Manager Ability		CEO Power		Financial Distress	
	Above-peers	Below-peers	Above-peers	Below-peers	Above-peers	Below-peers
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
Target deviation$_{i,t}$	**0.4091***** (4.103)	0.1947 (1.332)	0.0895 (1.088)	**0.2089**** (2.374)	0.1138 (1.488)	0.0872 (1.254)
Relative-to-peers$_{i,t}$ × *Target deviation*$_{i,t}$	-0.0140 (-1.450)	-0.0231 (-1.429)	-0.0160 (-1.342)	0.0038 (1.067)	0.0051 (0.239)	0.0062 (1.640)
Relative-to-peers$_{i,t}$ × *High MA*$_{i,t}$×*Target deviation*$_{i,t}$	0.0995 (1.101)	-0.0603 (-0.278)				
Relative-to-peers$_{i,t}$ × *Tenure*$_{i,t}$×*Target deviation*$_{i,t}$			**0.0086**** (2.199)	-0.0064 (-0.908)		
Relative-to-peers$_{i,t}$ × *Loss*$_{i,t-1}$×*Target deviation*$_{i,t}$					-0.1533 (-1.158)	-0.2398 (-1.390)
Target deviation$_{i,t}$ × *High MA*$_{i,t}$	**-0.4527**** (-2.218)	-0.3499 (-0.985)				
Tenure$_{i,t}$×*Target deviation*$_{i,t}$			-0.0060 (-0.686)	**-0.0162**** (-1.991)		
Loss$_{i,t-1}$×*Target deviation*$_{i,t}$					-0.0023 (-0.006)	-0.1798 (-0.647)
Relative-to-peers$_{i,t}$ × *High MA*$_{i,}$	-0.0210 (-1.248)	0.0090 (0.168)				

Relative-to-peers$_{i,t}$ × *Tenure$_{i,t}$*			-0.0001	**-0.0048****		
			(-0.079)	(-2.256)		
Relative-to-peers$_{i,t}$ × *Loss$_{i,t-1}$*					-0.0572	0.0132
					(-1.529)	(0.237)
Relative-to-peers$_{i,t}$	**0.0947*****	0.0414				
	(2.791)	(0.763)				
High MA$_{i}$			-0.0001	**-0.0068*****		
			(-0.080)	(-2.803)		
Tenure$_{i,t}$					-0.0390	0.0665
					(-0.509)	(0.763)
Loss$_{i,t-1}$	-0.0019	-0.0017	-0.0071	**0.0559****	-0.0044	0.0021
	(-0.163)	(-0.036)	(-0.781)	(2.180)	(-0.691)	(0.132)
Constant	**-0.0486***	-0.0010	-0.0067	**0.1006*****	-0.0075	0.0284
	(-1.800)	(-0.022)	(-0.367)	(3.759)	(-0.541)	(1.550)
Observations	419	184	739	331	739	331
R-squared	0.0573	0.0873	0.0223	0.0531	0.0248	0.0368
r2_a	0.0413	0.0510	0.0130	0.0326	0.0155	0.0160

Robust t-statistics in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Standard errors are clustered by firm.

TABLE 5

Alternative Tests of Performance-dependent Asymmetry in Relative Target Setting(H1)

$$\begin{aligned} \textit{Target revision}_{i,t+1} = {} & \lambda_0 + \lambda_1 \textit{Target deviation}_{i,t} + \lambda_2 \textit{Target deviation}_{i,t} \times \textit{D\_NEG}_{i,t} \\ & + \lambda_3 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \\ & + \lambda_4 \textit{Relative-to-peers}_{i,t} \times \textit{Target deviation}_{i,t} \times \textit{D\_NEG}_{i,t} \\ & + \lambda_5 \textit{Relative-to-peers}_{i,t} \\ & + \lambda_6 \textit{Relative-to-peers}_{i,t} * \textit{Low-profit-group}_{i,t} \\ & + \lambda_7 \textit{Low-profit-group}_{i,t} \\ & + \lambda_8 \textit{D\_NEG}_{i,t} + \lambda_9 \textit{Controls}_{i,t} + \textit{Year and industry fixed effect} \\ & + \varepsilon_{i,t} \end{aligned}$$

		Dependent variable : *Target revision*$_{i,t+1}$		
		Full Sample Test	Subsample Tests	
			Above-peers	Below-peers
Independent variables	Pred.	(1)	(2)	(3)
Target deviation$_{i,t}$	+	**1.1230***** (14.741)	**0.6891*** (1.801)	**1.3888***** (7.933)
D_NEG$_{i,t}$	?	0.0087 (0.425)	0.0237 (0.333)	-0.0379 (-0.741)
Target deviation$_{i,t}$ × *D_NEG*$_{i,t}$	-	**-0.4392***** (-3.762)	0.7655 (1.294)	**-0.6476***** (-2.780)
Relative-to-peers$_{i,t}$	-	-0.0183 (-1.439)	**-0.0382*** (-1.948)	0.0153 (0.397)
Relative-to-peers$_{i,t}$ ×*Low-profit-group*$_{i,t}$	+	**0.0048*** (1.868)		
Low-profit-group$_{i,t}$	?	0.0078 (0.556)		
Relative-to-peers$_{i,t}$ ×*Target deviation*$_{i,t}$	-	**-0.0180**** (-2.048)	0.0401 (0.511)	-0.0130 (-1.436)
Relative-to-peers$_{i,t}$ × *Target deviation*$_{i,t}$ × *D_NEG*$_{i,t}$	+	**0.0165*** (1.764)	-0.1813 (-0.955)	0.0005 (0.062)
Relative-to-peers$_{i,t}$ × *D_NEG*$_{i,t}$	?	-0.0095 (-1.059)	-0.0032 (-0.163)	**-0.0787**** (-2.132)
Growth$_{i,t+1}$	+	**0.0138*** (1.772)	0.0253 (1.569)	-0.0147 (-0.848)
MTB$_{i,t-1}$	+	**0.0265**** (2.547)	**0.0649**** (2.278)	**0.0547*** (1.874)
lnDELTA$_{i,t}$	?	0.0086 (1.238)	0.0213 (1.449)	-0.0262 (-1.410)

lnBONUS_EQUITY$_{i,t}$	**?**	-0.0146	-0.0228	-0.0253
		(-1.544)	(-1.005)	(-1.207)
CEOchair$_{i,t}$	**?**	-0.0146	-0.0156	0.0219
		(-0.882)	(-0.467)	(0.549)
AT per share$_{i,t-1}$	**?**	0.0002	0.0003	**0.0004***
		(0.957)	(0.451)	(1.851)
Ret$_{i,t}$	+	**0.1158*****	0.0556	0.0236
		(4.262)	(0.800)	(0.392)
Tenure$_{i,t,}$	**?**	-0.0003	-0.0025	0.0034
		(-0.221)	(-0.770)	(0.766)
Constant		0.0209	-0.0446	0.1769
		(0.268)	(-0.331)	(0.735)
Year fixed effects		Included	Included	Included
Industry fixed effects		Included	Included	Included
Observations		943	235	240
R-squared		0.6304	0.6918	0.7507
Adjusted R-squared		0.599	0.597	0.663

Robust t-statistics in parentheses(*** p<0.01, ** p<0.05, * p<0.1) Standard errors are clustered by firm.

TABLE 6

Probit Regressions on Determinants of Serial Correlation(H2)

$$\begin{aligned} \textit{Target Meet}_{i,t+1} = \lambda_0 + \lambda_1 \textit{Target Meet}_{i,t} \\ + \lambda_2 \textit{Relative-to-peers}_{i,t} \times \textit{Target Meet}_{i,t} \\ + \lambda_3 \textit{Relative-to-peers}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (5)$$

Dependent variable : *Target Meet*$_{i,t+1}$						
	Tests of Manager Ability		Tests of Tenure		Tests of financial distress	
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	*High MAi,t* =1 Samples	*High MAi,t* =0	Long-tenured	Short-tenured	*Lossi,t-1*=0	*Lossi,t-1*=1
Target Meet$_{i,t}$	**0.4205*****	**0.7421*****	**0.2872****	**0.5478*****	**0.3823*****	0.3798
	(2.704)	(4.341)	(2.504)	(3.409)	(3.773)	(1.364)
Relative-to-peers$_{i,t}$ × *Target Meet*$_{i,t}$	0.0912	0.0185	**0.1420****	-0.0528	0.0682	-0.1000
	(0.932)	(0.190)	(1.995)	(-0.620)	(1.116)	(-0.475)
Relative-to-peers$_{i,t}$	**-0.1761***	-0.0424	**-0.1340****	-0.0748	**-0.1130****	-0.1471
	(-1.924)	(-0.577)	(-2.211)	(-1.192)	(-2.177)	(-1.310)
Constant	0.1887	-0.1868	0.1545	0.0782	0.1490*	-0.1673
	(1.471)	(-1.467)	(1.633)	(0.644)	(1.713)	(-0.900)
Observations	347	273	660	395	1,028	72

Robust z-statistics in parentheses (*** p<0.01, ** p<0.05, * p<0.1). Long-tenured samples have CEO tenure bigger or equal to industry median. Short-tenured samples have CEO tenure short then industry median. Standard errors are clustered by firm.

상대적 목표설정의 비대칭성과 근본적 동인

국문초록

성과목표를 설정할 때 기업은 다양한 정보원천을 이용한다. 어떤 정보를 이용할 것인지, 해당 정보를 얼마나 어떻게 반영할 것인지는 경영자 행동 통제에 있어 중요한 문제이다. 지금까지의 목표설정 연구들은 개별기업의 과거 성과정보에 주로 초점을 맞추어 왔다. 반면 경쟁기업들의 성과정보(relative performance information)도 매우 유용한 정보원천임에도 불구하고 해당 정보의 사용에 관한 연구는 희소한 편이었다. 본 연구는 경쟁기업의 성과정보를 목표설정에 반영함에 있어서, 상대적 성과수준에 따라 비대칭적 반영이 일어나는지 검증한다. 직접 수집한 S&P 1500기업의 성과목표 데이터를 활용한 실증분석 결과, 성과수준이 높은 기업은 경쟁기업 정보를 적극적으로 활용하는 반면 성과수준이 낮은 기업은 매우 소극적으로 활용하는 것으로 나타났다. 다음으로, 본 연구는 목표설정에 있어서 경쟁기업 정보활용 방법에 근본적인 경제적 동인이 무엇인지 밝히고자 한다. 목표달성의 계열상관성에 영향을 미치는 요인들을 살펴봄으로써, 목표설정에 있어서 경쟁기업 정보활용을 조정하는 경제적 동인을 역으로 추적하고자 하였다. 실증분석 결과, 경영자 재임기간이 길어지면 계열상관성이 증가하고, 재무적 곤경이 심화되면 계열상관성이 하락하는 것으로 나타났다. 반면, 경영자 능력은 계열상관성에 영향을 미치지 않는 것으로 나타났다. 이 결과는 기존 목표설정 연구들이 암묵적으로 가정해왔던 효율적 계약가설을 지지하지 않는다. 본 연구는 목표설정에 있어서 경쟁기업 정보가 어떻게 반영되는지를 세부적으로 조망하고, 기존 연구들에서 암묵적으로 받아들여졌던 효율적 계약가설을 재검증해보는 데 의의가 있다.

주요어: 경영자보상, 성과목표, 목표설정, 상대적 목표설정

학번: 2016-20618