

The Ratchet Effect in Performance Target Setting: A Literature Review

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Abstract. Performance target setting is one of the core issues in the design of incentive contract, while the ratchet effect is among the most important and extensively discussed areas in goal setting research. This paper reviews relevant studies from three perspectives: the existence of target ratcheting, the causes and impacts of target ratcheting, and the influencing factors of target ratcheting. It focuses on evaluating the influencing factors that mitigate the impact of the ratchet effect in target setting. By organizing and summarizing existing research findings, this paper aims to assist researchers in advancing studies related to performance targets and identifying potential research gaps in target ratcheting.

Keywords: Performance Target; Ratchet Effect; Target Ratcheting; Literature Review.

1. Introduction

Performance target setting is one of the most central issues in the field of incentive contract design. In the corporate governance system, the performance target is both the highest lead for future business activities, budget execution and monitoring system, as well as the basis for performance evaluation of management^[1]. Firms invest a great deal of time and resources in the goal-setting process, which indicates that firms place a high strategic importance on this process^[2]. In most of the existing performance target studies, scholars have examined how firms set and revise performance targets in terms of the ratchet effect, relative performance targets, managerial profitability, and trust^[3-6]. Among them, the ratchet effect is one of the most important and widely and deeply discussed areas of target setting research.

The definition of the ratchet effect originates from the research of two scholars, Berliner and Weitzman, on the planned economy of the Soviet Union. Berliner found that Soviet state-owned enterprises determined the planned production targets for the next period based on the performance of the current period, and named this phenomenon of setting targets ratcheting for the next period based on the performance of the previous period “ratchet effect”^[7]. Weitzman found that central planners often adjusted production targets for the following year based on the actual production values of enterprises in the previous year, and the overachievement of the current year served as a benchmark for the adjustment of the targets for the following year, which led to the continuous rise of performance targets of enterprises^[8]. Weitzman further proposed a theoretical model of the performance target (operating budget) ratchet effect, and found that the completion of the year's performance target is positively correlated with the degree of adjustment of the next year's target, and the magnitude of target adjustment is greater than when the target is completed than when it is not completed, so that this phenomenon of easy to rise and difficult to fall targets for the “asymmetric ratchet effect”^[9].

In general, the existing research on the ratchet effect of performance targets (hereinafter referred to as “target ratcheting”) mainly explores the existence of target ratcheting, the causes and effects of target ratcheting, and the three aspects of the factors affecting target ratcheting. Although many results have been achieved in related research, with the rapid development of the global economy and the intensification of competition, and with the development of digitalization and information technology, the management styles of enterprises and organizations are constantly changing. Firms and organizations need to better understand and manage the impact of performance targets on

employees and organizations to cope with market changes. By studying target ratcheting, it can help enterprises better formulate and manage performance targets, avoid adverse effects, improve employees' job satisfaction and performance outcome, help enterprises better cope with market changes, formulate a more scientific and reasonable performance target system, and improve the competitiveness and innovation of organizations.

The significance of this paper is reflected in the following two aspects. One is that by summarizing the existing research results on target ratcheting, it finds the research vacancies of target ratcheting and points out some potential research directions for future research on target ratcheting. The second is that this paper summarizes the formation, consequences, and influencing factors of target ratcheting to help relevant researchers better conduct research related to performance targets. Given that target ratcheting is an important feature of performance targets and an important aspect that affects target setting, if one wants to study other aspects of performance targets, one may need to consider the target ratchet effect as well.

2. The Existence of target ratcheting

2.1. Theoretical Models of target ratcheting

After scholars proposed the theoretical model of target ratcheting in the context of the Soviet Union's planned economy system^[7-9], many scholars have done a lot of research and analysis on this "ratchet effect" within the enterprises of socialist countries at that time, and constructed many quantitative analysis models to analyze the target ratcheting of enterprises. After that, many scholars did a lot of research and analysis on this "ratchet effect" within the socialist countries at that time, and constructed many quantitative analysis models to analyze the target ratcheting of enterprises. For example, Yunker proposed a dynamic trade-off model for measuring target ratcheting in Soviet firms, which predicted that a high degree of overachievement of current program goals was desirable for managers in the short run because it increased their current compensation, but was less favorable in future periods because it increased the criteria on which future compensation was based^[10]. Murrell adds an analysis of managers' time preference to the model and shows that it essentially determines the achievement of the production target in a multi-period framework^[11]. Granick takes decisions by constrained maximization in terms of departments rather than firms and finds that there is no ratcheting effect in departmental annual plans for both the 1949-1956 and 1969-1977 time periods^[12]. Liu introduces a graphical approach to the model and concludes that if future operating revenues are sufficiently greater than present revenues, managers will tend to conceal part of their profits due to target ratcheting^[13].

For the construction of target ratcheting theoretical models, relevant studies in China started late and are few in number. For example, Wei simplified the complex target ratcheting model and found that the ratchet effect seems to have some effects on the dynamic behavior of agents, but these effects are not as large as generally believed^[14]. Xu and Liu establish a two-stage ratchet effect model based on principal-agent theory and find that most commercial banks have the phenomenon of only increasing but not decreasing appraisal performance indicators, and the ratchet effect is more obvious^[15].

2.2. Theoretical Models of target ratcheting

After discovering the existence of target ratcheting using model derivation, many scholars have further sought evidence for the existence of target ratcheting. Due to data limitations, some scholars have found target ratcheting existence through experimental studies^[16-19]. Kim and Shin first utilized the 2006 U.S. listed companies to conduct a large-sample empirical study on performance target information in executive bonus plans, and the results demonstrate the existence of performance target ratcheting effect and its asymmetry in executive compensation plans of listed companies, and that the degree of target ratcheting and its asymmetry varies with executive equity incentives and investment opportunities^[20]. Wei used data on sales targets of listed Chinese firms from 2006 to 2016 and found

that state-owned firms adjust their financial targets upwards less than non-state-owned firms.^[21] Kim et al. using earnings per share metrics and actual performance data from CEO annual incentive plans, find that moderately challenging targets is associated with an abnormal reversal of fourth-quarter performance, especially after an unusually good third-quarter performance^[22]. The goal-setting literature has focused on motivation in relatively simple single-task environments^[23]. Balakrishnan et al., on the other hand, using within-firm data, find that there is still a target ratcheting effect when it comes to goal-setting in multitasking environments, and that performance on tasks of lower importance not only affects goal-setting on that task, but also contributes to the target ratcheting for tasks of higher importance^[24]. In addition to for-profit firms, some scholars have found that the target ratcheting effect also exists in nonprofit organizations^[25,26].

However, Matějka et al. found an upward revision of targets following good performance using panel data from 2011-2019, but further research rejected the ratchet effect hypothesis because good performance in one period is associated with a decrease in the perceived difficulty of target ratcheting in the next period^[27]. This finding is even more pronounced in cases where good-performing managers have more private information about future performance and more credible long-term commitments.

In summary, the results of the existing evidence on the existence of target ratcheting are relatively consistent and the large sample evidence on target ratcheting has been fruitful in recent years. The relevant studies are mainly based on executive perspectives, so it is worthwhile to conduct further research on whether the effect of target ratcheting is the same as that of executive performance for both middle management and rank-and-file employees.

3. Reasons and Consequences of target ratcheting

3.1. Reasons for the Existence of target ratcheting

There are mainly two views regarding the reasons for the existence of the ratchet effect. On the one hand, the information asymmetry possessed by the principal-agent parties is an important reason for the emergence of the ratchet effect. An agent who has more advantageous information about the firm's performance potential relative to the principal and may use this information advantage to the detriment of the principal may induce his opportunistic behavior^[9,28]. Therefore, the principal can only judge the agent's ability and effort by observing the agent's goal accomplishment and assuming that, other things being equal, the agent will be able to accomplish in the future at least performance goals that are comparable in difficulty to those of the current period's performance goals, and therefore the most common method used in setting the performance target for the next period is to base it on the accomplishment of historical goals. If the agent is able to anticipate the principal's reaction, he may reduce his effort level and output level in order to conceal his private information at an early stage.

On the other hand, there is a ratcheting effect when setting next period's performance target based on historical target accomplishment. The findings reported by Dekker et al. show that firms mainly rely on historical performance, future plans, and relative performance targets to set performance targets^[29]. Of these, historical performance has very low cost of information acquisition and is relatively reliable. Therefore, relative historical performance remains the best information source option in target setting^[30]. In addition, performance target achievement has time-series correlation, whereby management that achieves the target in the current period is more likely to achieve the target performance in the next period^[31], and current period performance can be used as a lower bound for future performance expectations to limit budgetary slack^[28,30]. If an agent increases temporary surpluses to disguise current performance, he or she will be "penalized" by higher performance targets in the next period. Because temporary surpluses are less sustainable, profits can be reversed in the future, which not only leads to a higher performance target in the next period, but also reduces the likelihood of meeting the target in the next period. For these reasons, the ratchet effect is widespread in the practice of target ratcheting in firms^[32].

3.2. The Impact of target ratcheting

With regard to the effects produced by target ratcheting, most scholars believe that it is a negative motivational effect. Milgrom and Roberts analyzed the intrinsic characteristics and incentives of the ratchet effect and argued that performance targets rise as historical performance continues to rise, which leads to greater difficulty in achieving future performance targets, which in turn raises the level of effort demanded of managers and therefore produces a negative motivational effect^[33]. This negative effect is mainly reflected in the fact that higher performance targets dampen managerial effort, cause managers to use surplus management to non-exceed their targets^[28,34], increase bank operational risk^[15], and cause managers to manipulate accounting surpluses downwards in order to offset the positive temporary surplus increase^[30,32], and especially the decline in fourth-quarter performance after an unusually good third-quarter performance^[22].

Another view is that the ratchet effect of performance targets produces a positive effect on managers or firms. This positive effect is mainly in terms of driving the achievement of performance targets by improving the effectiveness of internal controls^[35], being effective in mitigating budgetary slack in participatory budgeting, enabling the board of directors to have up-to-date information about the performance and competence of managers and increasing the incentive effect of compensation, and limiting the scope for rent-seeking by management using private information^[36-38]. In addition, some scholars have found that the ratchet effect of performance targets has little correlation with managerial incentive effects^[31].

4. Influencing Factors of Target Ratcheting

Since most scholars believe that target ratcheting produces negative incentive effects, how to mitigate target ratcheting has become an important issue. Most of the existing studies consider the mitigating effect of relative performance targets, competition mechanism, prior agreement and job rotation on target ratcheting from the internal perspective of enterprises.

4.1. The effect of relative performance target on target ratcheting

Meyer and Vickers used dynamic agent model to introduce the concept of “relative performance comparison” to examine the CEO's work effort, which was called “relative performance comparison”. Refers to the principal's comparison of agents with the same or similar nature of work, so as to understand the agent's effort on the work and other related information, and the results of the study found that this performance evaluation standard for the agent will weaken the ratchet effect^[39]. Casas-Arce et al. adapted the above model to provide evidence that incorporating past peer performance into goal setting reduces the sensitivity of goal revisions to past performance on its own as well as the ratchet effect, using data on performance goals for 354 units of a government agency responsible for the reintegration of the longterm unemployed into the labor market for the years 2008-2010^[6]. Similarly, Aranda et al., utilizing five years of data from 376 locations of a large travel agency, and based on supervisors' consideration of the relative performance of comparable units when setting goals, find that when peers' accounting information is of higher quality, the firm reduces the extent of the performance target ratcheting effect while increasing the sensitivity of the performance target revisions to the historical performance of peers, and that when the Incorporating information about peers' historical performance when setting performance targets can effectively reduce the reverse incentive effect of the ratchet effect^[4]. In a substantial sample test, Xiao and Peng established that a relative performance evaluation model, utilizing the aggregate stock return performance of firms within the same industry and size as the reference performance, could circumvent the ratchet effect and enhance the incentive efficiency of the compensation contract.^[40] Cardella and Depew, through an experimental design and test, find that by assessing the productivity of agents at the group level, the ratchet effect can be mitigate the ratchet effect^[18].

In addition to peer relative performance targets, there are task relative performance targets and individual relative performance targets. Indjejikian and Nanda proposed a two-period agent model

and found that comprehensive performance indicators and greater integration of responsibilities help mitigate the ratchet effect^[37]. Wang and Liu introduced the Cobb-Douglas production function to address the shortcomings of the basic ratchet effect model and found that if the effect of the output of the first period on the output of the second period is taken into account in the model, then it will be helpful to weaken the ratchet effect in the process of dynamic incentives to operators^[41].

4.2. The effect of competition mechanism on target ratcheting

Kanemoto and MacLeod stand for a labor market perspective and theoretically demonstrate that ex-post competition from principal to agent is effective in eliminating the ratchet effect^[42]. Charness et al. utilised experimental evidence to substantiate their theoretical prediction, thereby demonstrating that in the absence of competition, a substantial ratchet effect is observed. This effect is virtually eliminated when labour market competition is introduced. Furthermore, the study ascertained the efficacy of ex post competition among job agents in eradicating the ratchet effect.^[17] Using a two-period dynamic model, Xiang, and Fu analyzed the improvement of the ratcheting effect in the incentives of state-owned commercial banks by competition between firms, mainly because competition led to an increase in managerial effort, which led to a shift from an organizationally oriented governance structure to a more comparatively efficient market-oriented governance structure.^[43]

Indjejikian et al. found that firms adjust the actual performance of the current period based on the performance targets for the next period. They argue that firms allow agents with good performance to keep information rents as a reward for truthful disclosure. For agents with poor performance, firms adjust the performance targets while increasing the mandatory requirement for effort, which improves the agent's performance.^[3] Deore et al. conducted three experiments to differentiate between CEOs with different levels of competitiveness. They found that CEOs with prestige power agreed to more challenging goal adjustments than low-power CEOs.^[44] Cui and Luo argued that the ratchet effect occurs when high power managers have an incentive to exert low effort in the current period, disguise themselves as low-ability managers, and conceal their true efficiency due to the anticipation that the previous period's performance may become a reference for the next period's cost budget. The authors then apply non-cooperative game theory to compare the effects of two incentive mechanisms—savings sharing (whereby managers receive a share of any cost underrun relative to the budget) and target sharing (whereby managers obtain a bonus when a pre-specified cost-reduction target is met)—on this effect. Their analysis demonstrates that, in a Perfect Bayesian Equilibrium, the target-sharing mechanism mitigates the ratchet effect more effectively than the savings-sharing mechanism^[45].

Oh investigates the product market competition and finds that the intensity of product market competition is negatively related to the target ratchet effect^[46]. This implies that in highly competitive product markets, firms are less likely to raise future goals simply because of good past performance, because product market competition itself provides more informative value about management's efforts.

4.3. The effects of ex ante agreement and job rotation on target ratcheting

For ex ante agreement, Baron and Besanko argued that a firm's ex ante commitment to the role of performance information in target setting would help managers to release private information and reduced the adverse effects of information asymmetry^[47], while Indjejikian et al. found that high-performing managers were likely to sign a long-term contract with the principal, thus mitigating target ratcheting^[3]. In some cases, there may be an implicit agreement between the principal and the agent, whereby the principal does not continually raise the performance target based on historical performance for a certain period of time, provided the agent does not conceal his or her abilities and puts in efforts to show true performance, which requires a trusting relationship between the principal and the agent. trust relationship between the principal and the agent^[5]. Similarly, Aranda et al. found that implicit contracts (informal agreements between employees and managers that are not written down) at the beginning of the period could reduce the ratchet effect that can occur in formal contracts,

using data from 414 outlets of a large travel retailer^[48]. This reflects the role of trust in counteracting the negative effects of target ratcheting. However, Bouwens et al. found that this commitment was less credible in organisational hierarchies where middle managers set goals for employees. They also found that the performance pressure faced by middle managers was positively related to the ratcheting of employee goals^[49]. That is, middle managers are more likely to set higher targets for their employees when they themselves face greater performance pressures. Kim and Shin, using a large sample, found that ex ante equity incentives have no effect on the ratcheting effect, but reduce the asymmetry of the ratcheting effect^[20].

For job rotation, Ickes and Samuelson argued that job rotation breaks the link between current performance and future incentive programs, thus removing the motivational disincentive effect of the ratchet effect^[50], which was further explained that agents rotating through the job have less task-specific information, and are therefore more likely to be motivated, but job rotation comes at a cost - agents must be compensated for the inconvenience of performing the new task^[51]. Wei conducted a controlled experiment to test the effectiveness of job rotation in eliminating the ratchet effect and found that when workers were told that they would be rotated in the future, the ratchet effect was effectively reduced^[52]. Contrary to theoretical predictions, the ratchet effect is also significantly reduced when principals have the high-cost option to rotate agents.

4.4. Other influences on target ratcheting

Zhen et al. studied the equity incentive plans of Chinese A-share listed firms and found that short-term equity incentives dampened the target ratcheting effect, whereas long-term incentives enhanced it^[53]. Kuroki and Shuto, on the other hand, analyse data from non-profit organisations and find that the presence of debtors mitigates the target ratcheting effect^[25]. Adopting a cross-sectional approach, Li et al. found that firms with higher operating cash flows set more achievable future earnings targets for their CEOs. Further analysis revealed that firms may reward CEOs who generate greater cash flows while limiting activities that sacrifice cash flows^[54].

In addition to using past or existing information as a source of information, some scholars have focused on market-based forward-looking information. For instance, Choi et al. employed analysts' annual earnings forecasts as the primary proxy for market-based, forward-looking information. They discovered that these forecasts offered greater insight into a firm's future performance and were less susceptible to managerial influence, thereby mitigating target ratcheting^[55].

Although many scholars have explored ways to mitigate target ratcheting within firms from various perspectives, only a few have considered the factors affecting target ratcheting from a macroeconomic perspective. For example, Liu and Liu found that the higher the economic policy uncertainty, the weaker the ratchet effect of firms' performance target setting and the smaller its asymmetry. The results of the mechanism analysis suggest that economic policy uncertainty leads to a decline in the performance target ratcheting effect by decreasing the usefulness of historical performance data for decision-making purposes and prompting firms to increase their reliance on high-quality peer information and internal business plans^[56].

5. Summary

In this paper, the existing research results on the ratchet effect of performance target setting are sorted out and summarized, and a literature review and review are conducted mainly from three aspects: the discovery of target ratcheting, the causes and consequences, and the influencing factors. The main viewpoints of recent research are that there is a negative incentive effect of the performance target ratchet effect and how to weaken the negative impact of the ratchet effect in performance target setting to alleviate the main contradiction of information asymmetry between the principal and the agent, and at the same time to explore the incentive mechanism that aligns the values of both the principal and the agent, so that the principal seeks for a balanced point in the game of obtaining the private information of the agent and increasing the agency cost.

At present, the research on performance target setting based on ratchet effect has achieved many results, but it can still continue to deepen in the following aspects. First, improve the research on the economic consequences of target ratcheting. Existing research on the consequences of target ratcheting mainly focuses on the positive and negative research on the role of incentives, however, goal setting may have an impact on other aspects of corporate governance, especially in the context of intensified market competition and the continuous development of information technology, the future can be improved from different perspectives on the economic consequences of target incentives research. Second, expanding the research perspective of target ratcheting influences. Digital transformation and the ensuing business model innovations have fundamentally changed consumer expectations and behaviors, putting pressure on traditional firms and disrupting numerous markets^[57]. Goal-setting dynamics in the context of digitization can be studied in the future. For example, it could be investigated how digital tools and data analytics can be used to dynamically adapt performance targets to rapid changes in the market and business environment and to reduce the negative impact of the ratchet effect. You can also explore how to design effective incentives to encourage employees to reach and exceed performance targets in a digital and intelligent environment, while reducing the pressure from the ratchet effect. Third, finding a balance between long-term targets and short-term performance. Future research could focus on how companies can balance long-term development targets with short-term performance pressures in the pursuit of digital and intelligent transformation, to avoid compromising long-term value creation by focusing excessively on short-term performance.

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