

The working of targets and directives

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Abstract

Targets give managers incentives to pursue firm objectives but also to take measures that are inconsistent with firm objectives such as slowing down effort so as to keep future target levels down. We study how a retail firm comprising 200 shops uses target ratcheting to increase sales. In support of ratcheting we document that in most cases shop performance in year t is better than performance in year $t-1$. We also find that managers slow down sales in the final month(s) of the budget year in order to 'manage' next year's target. We conclude that this (negative) incentive effect is strong in that the firm took ample measures that would prevent shop managers to engage into sales reducing activities. In addition to the targets, the firm imposes directives on managers such as that managers must pass on firm information to lower level employees. The firm believes that compliance with these directives is positively related with sales levels. Supervisors subjectively decide whether shops managers comply with the directives. We find that compliance with the directives is related to current and future sales. Additionally we find that compliance ratings are related with next period's target. Overall we find that the target setting system and directives the firm imposes on shop managers affect sales.

Keywords: target setting, ratchet effect, delegation of decision rights
JEL Classification: J33; M41; M52

“ On average all shops are working at 80% of capacity. Therefore it is difficult for me to accept any sales drop.”

(Firm CFO February 2005)

1. Introduction

This paper reports on how a retail firm deploys targets and directives to pursue sales growth. Firm management is convinced that shops on average are underperforming. For favorable sales results, the firm therefore ratchets up targets to levels that exceed last year's performance. In addition, the firm imposes directives on shop managers. Firm management believes that compliance with these directives is conducive in achieving the firm objective of sales growth. The data seems to warrants target ratcheting. We also find that the system in place impedes but does not prevent shop managers to take actions to reduce future target levels. To reduce future targets shop managers have to decrease the level of effort underlying their sales activities. The shop manager cannot manipulate the sales measure. That is, they cannot give price discounts or sell the products forward to manage sales. In addition the performance evaluation system makes it unattractive to emphasize meeting directives at the cost of sales (Baker, 2002) as sales decreases directly affect the variable pay (made contingent on sales performance) and the performance appraisal (for about 50% determined by sales performance). We conclude that the (negative) incentive effect of ratcheting is very strong as even in conditions where it is virtually impossible to engage into undesired behaviors, managers do so. The sales reduction translates into a 4% earnings fall over the period we examine. We also find a positive relation between directive compliance and contemporaneous and subsequent sales performance. The directives are set in five performance area's affecting sales levels: innovation; entrepreneurship; efficiency; responsibility; and cooperation. Supervisors establish compliance in a subjective fashion. Compliance scores in these directives determines 50% of the performance appraisal while the remaining 50% is mainly determined by meeting or beating the financial targets of sales and use of labor hours. Finally we find that directive compliance positively affects next period target levels. Throughout the paper we evaluate the working of the controls against the firm objective of

pursuing sales growth. On average the 200 individual shops appear to contribute to this target.

We believe this paper potentially contributes to the literature for the following reasons. The data set we have access to features a setting where management has strong opinions on market opportunities as well as how shop managers should work. These opinions are all geared towards increasing sales while impeding managers to engage into undesired behavior. In addition the firm uses strong incentives to increase sales levels. This environment offers us the opportunity to test whether conditions facing the shop managers actually warrant central management imposing these assumptions on shop managers. Particularly the data enables us to study whether the firm achieves its objectives of sales growth and how the firm prevents shop managers from engaging into undesired behavior. While the knowledge base on performance measurement and rewards is mounting, we know little of whether firms actually achieve targets when using these measures and incentives (Ittner & Larcker, 2001). Related to this, the study speaks to the potential contribution to firm value of ratcheted targets (Leone and Rock, 2002; Leone, Misra and Zimmerman, 2004). This study also documents how subjectivity in performance assessments may affect performance. While concerns have been raised of supervisors introducing a lenience bias in assessing subordinate performance (Prendergast and Topel, 1993) we document a relation between subjective assessment and sales achievement. In addition we provide some insight into how firms can design a control system that impede subordinate's 'gaming the system' in terms of performance management (e.g., Ittner and Larcker, 2001, page 391). Finally this paper takes issue of how decision rights, performance measures and punishments/rewards affect in conjunction objective achievement (Jensen and Meckling, 1998; Wruck and Jensen, 1994).

2. The firm

2.1 The firm and its shops

The research site is a business unit of a Netherlands-based privately held retail firm. The firm's strategy is to maintain its market leadership within the Netherlands and also strengthen its position as one of the major retailers in their branch in North-West Europe. In 2005 the firm runs about 400 shops, employs 2500 people, and generates €400 million revenues and €8 million earnings before tax. The firm has organized its

business based on geography and shop formula. The business we study represents the firm's main shop formula located primarily in the Netherlands. The business unit comprises three geographical regions while each region consists of a few clusters and each clusters contains seven to nine shops. The empirical analyses in this study are restricted to nearly 200 retail shops that accounting for about 50% of total firm sales. Most retail shops are located in or near shopping centres mostly in urban areas, where each outlet sells more or less similar merchandise.

2.2 Target setting

The products and distribution of the firm's product offerings are determined at the head quarters. In weekly meetings cluster managers and business unit managers exchange their ideas as to how to approach the market. Shop managers have to implement decisions made at the business unit level. This implementation involves not so much which product but much more how and how much. The latter is translated in shop sales targets.¹ The sales target is established based on passed performance (Murphy, 2001). That is, business unit management believes that shops on average can improve performance. A soon as a shop sets a 'shop record', this record is assumed to be the least performance the shop can achieve. The 'how to approach the market' is laid down in a specific set of directives that shop managers and employees are expected to comply with. Compliance is monitored through the shop manager's supervisor, i.e. cluster managers. Shop managers have very little say in how they run their shop. Decentralization of decision rights to shop level is restricted to day-to-day operations within shops. Shop managers are responsible for achieving labour hours and (chiefly) sales. They therefore have decision rights in managing the sales team, managing stock, maintaining/improving quality of shop image, etc. Decisions concerning pricing or advertising are restricted to the firm. Cluster managers monthly discuss labour hours and sales achievement with shop managers. In addition cluster managers frequently pay visits to shops so as to monitor whether shop managers comply with directives in place.

2.3 Variable pay

The firm has an incentive plan that awards shop managers with a quarterly bonus that is primarily based on two dimensions. First if actual quarterly sales exceed quarterly

¹ No individual product target is ever used, targets are set at the shop level.

sales targets, shop managers receive a bonus linear in the difference between actual and targeted sales level. However, a discount applies to the bonus when shops managers exceed the labour cost budget. This decline in bonus is linear in the percentage in which actual labour hours exceed budgeted labour hours. In this way incentives are provided such that shop managers schedule more employees to work during times of high customer traffic, while avoiding situations where multiple employees are working with limited work to complete. Overall, the incentive compensation has a lower bound of zero (i.e. bonus reductions because of exceeding a labour hours budget cannot exceed the sales bonus) and an upper bound of 50% of gross salary. Average incentive compensation amounts to 10% of shop managers' gross salary.

2.4 Directives

Decentralization of decision rights to shop level is restricted to day-to-day operations within shops. Shop managers are responsible for achieving targets regarding sales and labour hours, managing the sales team, managing stock, maintaining/improving quality of shop image, etc. Decisions concerning pricing or advertising are restricted to business unit level. The financial control of shops is exercised through monthly comparison of budgeted vs. actual performance on two objective performance measures: sales and the use of labour hours (since labour represents the largest operating expense at the retail shop level). Senior management argues that on average there is considerable potential for further improvement of shop sales. The firm sets specific directives in five performance areas: innovation, entrepreneurship, efficiency responsibility and cooperation. Appendix 1 describes each directive. Throughout the year cluster managers frequently visit shops and discuss performance in these areas with shop managers. The formal conclusion in terms of whether shop managers comply with the directives is based on the observation of the cluster manager. That is, cluster managers make a subjective assessment of the compliance of the managers with the directives.

2.5 Performance appraisal

Yearly salary increases and promotion decisions are made contingent on the outcome of the performance evaluation of the shop manager which takes place at the beginning of October and reflects performance in the budget year from October of year t-1 until

September of year t . Performance evaluation is conducted by the cluster manager who is the supervisor of the shop manager. The overall evaluation of shop manager performance is established through subjective assessment of the results achieved by the shop manager and the subjective assessment of the overall compliance of store managers with directives. The assessment of the results is for 50% dependent on the achievement in the financial measures of meeting the sales target and meeting labour hour cost targets. The evaluation of the results and the evaluation of the compliance with directives result in a good, mediocre or substandard performance appraisal. The evaluation of the shop managers in each of these two areas occurs on a three-points scale. Eventually nine different possible outcomes for performance evaluation of shop managers can be distinguished (i.e. nine-block code). The three points are then expressed in a final assessment.

2.6 Descriptive statistics

Monthly data regarding sales and quarterly data regarding labour hours were collected for a period of 58 months (16 quarters) starting from October 2000. Sales and labour hours data were electronically obtained from general ledgers maintained at corporate headquarters. Each year consists of 200 individual observations where for each year 12 observations were excluded from our sample because of the discontinuous nature of their operations. Moreover observations were omitted from the sample if they have incomplete observations over the year (e.g. 10 monthly observations for actual sales and 12 monthly observations for target sales). Data with respect to the staffing of the position of retail shop manager from October 2001 until March 2005 were hand-collected from HR-records. Observations were removed in the extent that more than one shop manager served the same shop within the budget year. Data regarding the overall outcome of performance evaluations starting from October 2001 until September 2004 were hand-collected from the HR-records. Only shop managers operating for a full year receive a performance evaluation. Documents regarding general strategy, incentive compensation and performance evaluation and meetings with senior management and corporate staff provide qualitative data about the research issues. Descriptive statistics on the main variables are in Table 1.

3. Conditions supporting target ratcheting

The firm management is convinced that on average the shops can increase performance with 20% points. The management of the retail chain uses current performance as a criterion in determining future targets. That is, they ‘ratchet the target up’ using past performance as the minimum level of achievement. The idea behind ratcheting is that the highest performance in recent years is the least possible next and subsequent period achievement (Weitzman, 1980; Chow et al, 1991; Murphy, 2001). This ratcheted target can be achieved under the assumption that the specific organization is recently underperforming and/or that market conditions allow for growth opportunities that the shops manager has yet to discover. Under this assumption ratcheting targets provide incentives to managers to increase sales vis-à-vis last years performance (Murphy, 2001). However, a necessary condition to be met is that the firm’s sales potential assumption is satisfied. We estimate whether the data supports this assumption running the following regression:

$$\Delta\text{SALES}_{i,t} = \delta_0 + \delta_1\text{DEV_TARGET}_{i,t-1} + \delta_2\text{DUMG}_{i,t-1}*\text{DEV_TARGET}_{i,t-1} + \delta_3\text{DUMG}_{i,t-1} + \varepsilon_{i,t}, \quad (1),$$

where $\Delta\text{SALES}_{i,t}$ represents the change in sales for shop i from period t relative to period $t-1$ (i.e. $\text{SALES}_{i,t} - \text{SALES}_{i,t-1}$); δ_0 is a constant that represents average growth across shops; $\text{DEV_TARGET}_{i,t-1}$ is the deviation between actual sales and sales target at period $t-1$. $\text{DUMG}_{i,t-1}$ is an indicator variable equal to 1 if the manager of shop i achieved a sales performance that exceeded the sales target at period $t-1$. The results of this analysis are reported in Table 2, column 1. We find the sum of δ_1 and δ_2 to be positive (COEFF=1.02) and significant based on F-test of the sum of coefficients ($p < 0.01$). This result indicates that it is indeed unlikely for individual shops to undercut the latest sales achievement. We find that δ_1 (COEFF=0.21) is significant at the 10% level ($p < 0.08$). This indicates that an adverse deviation from the target of 100 at period $t-1$ is likely to be succeeded by an additional sales drop of approximately 20. Hence, the results suggests that upward ratcheting is warranted in the case that targets are exceeded, while after an adverse result on average sales in year t are expected to be even lower that this of $t-1$. We further investigate this result in a scaled model for

which sales change and the deviation from the target are scaled by respectively sales and sales target both in period t-1. In comparison to the previous model this scaled model shows (Table 2, column 2) that adverse sales results relative to the target are not significantly related to next period sales change. We still find a positive relation between favorable sales results and the next year's sales change (COEFF=0.44) that is significant based on a F-test of the sum of coefficients ($p < 0.01$).

From these results we conclude that favorable performance at t-1 is indeed succeeded with a favorable sales change in the subsequent period. This would support the firm's approach of updating targets upwards. Adverse sales results seem to convey mixed information. That is, it remains inconclusive whether sales will further go down or up in the subsequent year. The unscaled model outcomes suggest that a further decrease is more likely to happen. However, the scaled model does not warrant this conclusion. In terms of targets setting it would then be expected the firm is right about the shops sales potential, while it may be right or wrong for shops facing sales drop at t-1. This suggests that it is difficult for the firm to tell the difference between structural and transitory sales decreases. However, it is also the cases that we find (not tabulated) that the number of favorable results compared to the target is much larger than negative target deviations; i.e. 579 and 110 respectively. This is consistent with the findings of Leone and Rock (2002) and Merchant and Manzoni (1989). This result suggests that the firm is right in a vast majority of cases in assuming that the latest sales performance is the least performance the retail shop can achieve.

4. Asymmetric target Ratcheting

In this section we determine how the firm ratchets targets and how managers responds to the target settings system. The main findings are that the firm ratchets targets asymmetrically and that the downward ratcheting may be inconsistent with what can be achieved in retail shops facing declining sales. We also observe that managers do engage into effort reduction so as to prevent that targets get ratcheted. .

4.1 Ratcheting

Firm management on purpose ratchet targets. They also asserted that negative sales variances were considered temporal and that for that reason targets decreases are rare.

This indicates indeed that the firm engages into asymmetric ratcheting. This means that positive sales deviations relative to the target are associated with stronger upward target changes compared to the downward target changes due to negative sales deviations. In order to test the magnitude of asymmetric target ratcheting empirically, we use both an unscaled and scaled model. The unscaled model can be described as follows:

$$\begin{aligned} \text{TARGET_UPDATE}_{i,t} = & \beta_0 + \beta_1 \text{DEV_TARGET}_{i,t} + \beta_2 \\ & \text{DUMB}_{i,t} * \text{DEV_TARGET}_{i,t} + \beta_3 \text{DUMB}_{i,t} + u_{i,t}, \end{aligned} \quad (2),$$

where $\text{TARGET_UPDATE}_{i,t}$ represents change in target sales for shop i from period $t+1$ relative to period t (i.e., $\text{TARGET}_{i,t+1} - \text{TARGET}_{i,t}$), $\text{DEV_TARGET}_{i,t}$ denotes the sales performance for shop i in period t relative to the target (i.e. actual sales $_{i,t}$ – sales target $_{i,t}$), and $\text{DUMB}_{i,t}$ is an indicator variable equal to 1 if actual sales < target sales for year t for shop i , zero if not. The impact of positive variances on subsequent sales target changes is represented by the coefficient for β_1 . The impact of adverse variances on the subsequent target changes is represented by sum of coefficients β_1 and β_2 . Therefore empirical tests for asymmetric ratcheting imply testing for a statistically significant coefficient for β_2 . Asymmetry requires that $\beta_1 > 0$ and $\beta_2 < 0$. Our analysis also tests a scaled model where both the sales target change and the sales performance relative to the target are defined in terms of percentages (i.e. variable at both sides of the equation are divided by $B_{i,t}$)². The regression equations are estimated through OLS using 48 months of actual and targeted sales data starting from October 2000.

The results for both the scaled model and the unscaled model are reported in table 3³. For the unscaled model, the coefficient for positive target deviations (β_1) is positive and significant ($p < 0.01$). The coefficient that represents the asymmetry in the target ratcheting between positive and negative variances (β_2) is both negative and significant ($p < 0.01$). The sum of coefficients ($\beta_1 + \beta_2$) that reflects the association

²Differences in scale between different outlets can induce heteroskedasticity. Since on average higher variances corresponds with higher target changes, one can expect that the target change variation is higher in increasing deviations from target, i.e. variance of $u_{i,t}$ increases in sales target variance.

³ For both models one influential observation (Cook's $D > 1$) is excluded from the regression analyses.

between negative sales variances and next period's target change is significant at the $p < 0.01$ level based on a F-test of the sum of coefficients. The results are indicative of asymmetric ratcheting. A positive deviation from the sales target of 100 is associated with a subsequent target increase of 117, while a negative deviation of 100 results in a subsequent target decrease of 93. The results for our scaled model are generally consistent with our findings for the unscaled model. The coefficient on positive sales deviations and the coefficient that reflects asymmetry in ratcheting are significant ($p < 0.01$). The sum of coefficients reflecting the association between negative variances and next period's target change is significant at $p < 0.01$ level based on a F-test of the sum of coefficients). In the scaled model a positive deviation of 100% is associated with a target increase of 116% while a negative deviation of 100% is associated with a target decrease of 92%. Both the unscaled and scaled model report high explanatory power and F-values indicate that both models are highly significant ($p < 0.01$). Our results remain significant after inclusion of year dummies, and the use of heteroskedasticity- and autocorrelation-consistent standard errors⁴ (not reported).

4.2 Management response: effort reduction

A possible negative effect of ratcheting, especially of asymmetric ratcheting, is that managers want to circumvent target ratcheting (Weitzman, 1980; Leone and Rock, 2002). That is, high favourable performance increases current variable pay but it may jeopardize future bonuses. Hence managers face a trade-off between present rewards and future losses because of higher (unachievable) targets. Murphy (2001) and Zimmerman (2004) consider this phenomenon the perverse incentive effects of budget ratcheting. Leone & Rock (2002) show evidence of managers decreasing discretionary accruals to offset positive earnings increases. Roychowdhury (2006) shows that managers engage into price discounting as well as expenditure reduction so as to meet investor profit expectations. He also observes these behaviours to be relatively curbed in firms whose shares are held by institutional investors. These firms are subject to tighter governance structures more resilient to management inclination to manipulate performance. De facto the executive management of these firms hold lower levels decisions rights (Aghion and Tirole, 1997).

⁴ Standard errors of observations from the same retail shop may not be completely independent. Still assuming that the error terms of different retail shops are uncorrelated, our OLS covariance matrix is estimated by a variant of Newey-West estimation that allows for general forms of heteroskedasticity as well as autocorrelation within a given retail shop (Verbeek, 2004; Cameron & Trivedi, 2005).

We observe in our research setting that the firm made it difficult for shop managers to manipulate outcomes. That is, the firm has created conditions that provide very limited leeway for the shop managers to manipulate results. First the system does not allow shop managers to create discretionary accruals. This is so because shop managers are not involved in bookkeeping. While they do operate the cash register the firm keeps close track of sales and inventories making it unlikely for shop managers to tamper with sales and/or inventories. The only viable way in which shop managers can prevent that targets get ratcheted up is through actually slowing down sales activities. The inclination to slow down sales at the end of the accounting period is augmented with the bonus system in place. That is, any current ‘over performance’ goes at the costs of future bonuses in a setting of asymmetric ratcheting even if current performance is sustainable. Even slowing down sales activities is curbed through the system. Indeed the shop manager can decelerate the number of clients served per time unit. (S)he can even put off clients by servicing them in a brusque fashion. However since most managers – especially during peak hours - are working in a team they run the risk that their adverse behavior is observed by other employees and shop managers are closely supervised by cluster managers who pay visits to the shops (without notice) on a regular basis.

We examine whether or not shop managers engage into ‘real sales management’ through slowing down sales when abnormal favorable sales performance occurs during the first number of months of the year. We heed the argument developed by Brickley et al. (2004) that states that adverse incentive effects of ratcheting could be mitigated through job rotation, since managers will not be confronted with ratcheted up standards in the subsequent year. Therefore, we make a distinction between: a) shop managers who continue to operate as shop manager in the current shop; and b) shop managers who leave the firm or are employed in another shop during the next period. Potential adverse incentive effects of asymmetric ratcheting are tested empirically through the following model:

$$\begin{aligned} \text{SHARE}_{i,t} = & \gamma_0 + \gamma_1 \text{DGYTD}_{i,t} + \gamma_2 \text{DTRANSF}_{i,t} + \gamma_3 \text{DGYTD}_{i,t} * \text{DTRANSF}_{i,t} \\ & + v_{i,t}, \end{aligned} \tag{3}$$

where $SHARE_{i,t}$ denotes the final three, two and one month(s) share of yearly sales

(formally described as $\sum_{m=10,11,12}^{12} A_{i,t,m} / \sum_{m=1}^{12} A_{i,t,m}$, where A denotes actual sales, t denotes

the budget year t and m denotes monthly periods in the respective budget year t with $m = 1, \dots, 12$) for shop i in year t, $DGYTD_{i,t}$ is an indicator variable equal to one if the

sales performance relative to the sales target in the first nine, ten or eleven months of the respective budget year $(\sum_{m=1}^{9,10,11} A_{i,t,m} - \sum_{m=1}^{9,10,11} T_{i,t,m}) > 0$ for shop i in year t, zero

otherwise, and $DTRANSF$ is an indicator variable equal to one if the shop manager transfers to another shop, job or firm for shop i in year t, zero otherwise. If shops

managers slow down real sales levels to prevent ratcheting to happen it is expected

that $\gamma_1 < 0$ and $\gamma_3 > 0$. The regression equation (3) is estimated through OLS using 36

months of actual and targeted sales data, and shop manager staffing data from October

2001. Table 4 reports the regression results for the final three, two, and one month(s)

of the budget year. Our findings generally show that shops that report favorable

intermediate sales performance (relative to the sales target) are more likely to show

relatively lower sales levels toward the end of the budget period⁵. The last month

coefficient indicates that favorable performance-to-date (γ_1) is negative and

significant ($p < 0.01$) and the coefficient that is indicative of both favorable

performance-to-date and transfer to another shop, job or firm (γ_3) is positive and

significant ($p < 0.01$).

Shop managers that report substandard sales performance and remain as the shop

manager in the same shop on average report 7.29% of yearly sales in the final month

(about €62K) opposed to 6.97% (about €59K) for managers that have a favorable

sales performance and remain to operate as shop manager in the same shop. Moreover

shop managers that have favorable sales performance and transfer to another shop, job

or firm on average also report 7.29% of yearly sales in the last month of the budget

year. The difference in the share of yearly sales in last month of the budget year

between -on the one hand- shop managers that both report a good performance-to-date

⁵ Interviews with senior management informed us about the probable means through which managers can affect the timing of sales. Such illustrations include cutting back on the provision of information and advice concerning merchandise and merchandise usage/maintenance, less cross-selling effort (e.g., extended guarantee), timing of extended opening hours, timing of customer's collection of goods ordered through the Internet at the local shop, etc.

and make a transfer and -on the other hand- shop managers that report a favourable performance to date and remain to operate as retail shop manager is significant based on a F-test ($p < 0.01$). Therefore in our specific research setting where shop managers have little alternative options other than varying effort levels, we still find moderate but significant degrees of reduction of sales performance.

Magnitude incentive effects

We interpret the evidence as consistent with incentive effects of target ratcheting. That is, negative effects are associated with target ratcheting. However, as to the magnitude of the economic significance of the reported adverse incentive effects of target ratcheting at a firm level, elimination of reported adverse incentive effects would result in a 4% increase in earnings before taxes for the respective business unit over the period 2001-2004. That is, if the firm could mute ‘perverse incentive effects’ it would increase earnings with €500,000 (4% of business unit earnings). The reported decrease in the relative share of sales for the final month(s) for those respective shop managers would result in a 7% point bonus increase for the respective shop managers.

Robustness check

With respect to the means through which shop managers slow down sales activities in the final periods of the budget year, we examine whether shops that report favourable sales after nine months have a relatively lower use of labour hours for the final three months. We did not find any significant results. As robustness analyses, we repeated the same analysis while using fixed effects regression instead of pooled OLS to control for unobserved heterogeneity at the shop level. Moreover we also repeated pooled OLS model with heteroskedasticity- and autocorrelation-consistent standard errors (as described in the prior section). Results remain significant at conventional levels (not reported).

5. Compliance with firm directives

5.1 The directives

In addition to the financial targets the firm deploys directives that allegedly are related to sales. We investigate in this section whether shops managers following up these directives are more likely to increase sales than managers who tend to neglect them. The firm holds strong opinions on how to improve sales performance and translates these opinions in directives. They are convinced –for instance- that without shop managers providing timely feedback to sales assistants sales deteriorates. Hence, providing feedback is a directive imposed on the shop manager. Directives are equal for each shop manager. It is argued in the literature that prescribed behaviour is called for if the manager is unaware or unwilling to carry out his tasks in a fashion that has a positive effect on firm performance (e.g., Merchant, 1985). In this case management indeed employs people who ‘feel a lot for the products and services they sell.’ However, this does not automatically imply that they understand the business. Indeed the fact that they feel attracted to the business may actually distract managers from business related tasks. They may -for instance- pay so much attention to single clients that show a similar high engagement in the products of the retail shops that this attention goes at the costs of total sales. For this reason supervisors visit shops to ascertain that shop managers actually complies with the directive. Hence, compliance to prescribed task fulfilment is part of the performance evaluation cycle.

A potential threat to the use of these directives is that the managers engage into behaviours that make them look good in the measure but while they (un)wittingly destroy value. Baker (2002) refers in that respect to distortion. In our setting, more cooperation of the shop manager with shop employees (good in the measure) may entail lower sales levels because of the time required to bring about this cooperation. That is, shop employees may be very enthusiastic about the shop manager generously spending time with them, while –at the same time- they both forgo potential sales. However, the sales targets the managers are subject to gives them little opportunity to increase the measure at the cost of (current) sales. Managers have to achieve their sales target to become eligible to variable pay while their overall performance appraisal depends on the subjective assessment regarding their results and compliance with directives (where the former is partially dependent on sales target achievement). Hence, managers can make a trade off between (increasing/decreasing) sales and

performance appraisal outcomes (increasing/decreasing compliance with directives). However, the firm made it unattractive to do so as managers would have to forfeit a bonus to acquire a favourable performance appraisal. But even acquiring a favourable performance appraisal is jeopardized if the manager would emphasize on meeting the directives. If shop managers meet directives they may miss out on sales in the extent that their behaviour goes actually at the costs of sales. Besides that this negatively affects their incentive bonus, it may affect their overall performance appraisal negatively since it is for about 50% contingent on financial results. Hence managers will be very reluctant to do so.

The effect of favourable performance in meeting the directives can take immediate effect of in subsequent periods. For instance, the extent to which customers receive a service or product in the desired a fashion (e.g. kind personnel) they are more likely to return in the shop. Some evidence surfaces in the literature to show that ‘future financial’ performance is actually compensated in some period before it actually shows. Hayes and Schaefer (2000) show that firms whose top managers receive a bonus while performing substandard from a financial point of view, exhibit an extraordinary good performance in the subsequent period(s). We examine whether compliance with directives is related with sales performance across retail shops. We investigate whether compliance with directives assessed in the current period is associated with sales performance in the current as well as in the subsequent accounting period. We examine this relation by means of two sets of models.

5.2 Effect of compliance on contemporaneous sales

The first set of analyses examines whether evaluation of shop managers on meeting the directives are positively associated with sales performance in the same year. In this first set of analyses, we address potential concerns about the outcome effect^{6,7, 8}. The respective levels and percentage change models can be described as follows⁹:

⁶ The outcome effect is defined as subjective evaluations being influenced by outcomes on objective performance measures. The outcome knowledge influences the evidence recalled by the evaluator when attempting to assess the managerial performance (Ghosh & Lusch, 2000).

⁷ For illustrative purposes: from the retail shops that report a negative sales budget variance about 21% received a favorable evaluation, 65% received a sufficient evaluation and 14% received an adverse evaluation on directives. These numbers more or less resemble the numbers reported in table 1, panel B.

⁸ In general when variables are omitted from a regression and when omitted factors are correlated with the dependent and independent variable(s), a confounding bias results. This bias can be addressed by

$$\begin{aligned} \Delta \text{SALES}_{i,t} = & \delta_0 + \delta_1 \text{COMPLIANCE_G}_{i,t} + \delta_2 \text{COMPLIANCE_M}_{i,t} + \\ & \delta_3 \text{SALESVAR}_{i,t} + \delta_4 \text{LABOURVAR}_{i,t} + z_{i,t}, \end{aligned} \quad (4),$$

and

$$\begin{aligned} \% \Delta \text{SALES}_{i,t} = & \delta_0 + \delta_1 \Delta \text{COMPLIANCE_G}_{i,t} + \delta_2 \Delta \text{COMPLIANCE_M}_{i,t} + \\ & \delta_3 \% \Delta \text{SALESVAR}_{i,t} + \delta_4 \% \Delta \text{LABOURVAR}_{i,t} + \delta_2 \% \Delta \text{SALES}_{i,t-1} + z_{i,t}, \end{aligned} \quad (5),$$

where $\Delta \text{SALES}_{i,t}$ represents the change in sales for shop i from period t relative to period $t-1$ (i.e. $\text{SALES}_{i,t} - \text{SALES}_{i,t-1}$), $\% \Delta \text{SALES}_{i,t}$ represents the percentage change in sales for shop i from period t relative to period $t-1$ (i.e. $(\text{SALES}_{i,t} - \text{SALES}_{i,t-1}) / \text{SALES}_{i,t-1}$), $\text{COMPLIANCE_G}_{i,t}$ is an indicator variable equal to 1 if the shop manager of retail shop i received a favorable evaluation on the compliance with directives at the end of period t , zero if not, $\text{COMPLIANCE_M}_{i,t}$ is an indicator variable equal to 1 if the shop manager of shop i received a sufficient evaluation on the compliance with directives at the end of the period t , zero otherwise, $\text{SALESVAR}_{i,t}$ is sales variance in period t for shop i , $\text{LABOURVAR}_{i,t}$ denotes the labour hours variance in period t for shop i , $\Delta \text{COMPLIANCE_G}_{i,t}$ is an indicator variable equal to 1 if a shop manager of shop i received a better evaluation on the compliance with directives at period t relative to period $t-1$, zero otherwise, $\Delta \text{COMPLIANCE_M}_{i,t}$ is a indicator variable equal to 1 if the shop manager of shop i received an evaluation on the compliance with directives equal to that of period $t-1$, zero otherwise, $\% \Delta \text{SALESVAR}_{i,t}$ represents the percentage change in sales variance for shop i from period t relative to period $t-1$, and $\% \Delta \text{LABOURVAR}_{i,t}$ denotes percentage change in labour hours variance for shop i from period t relative to period $t-1$. Estimation of equation (5) is restricted to those observations that have the same shop manager for retail shop i for two consecutive years and estimation of equation (6) is restricted to the observations that have same shop manager for shop i for three consecutive years. For both equation (5) and (6), we expect that $\delta_1 > 0$ and $\delta_2 > 0$. Regression equations are estimated through OLS using 36 months of actual and

means of inclusion of the potentially confounding variable as an additional regressor in our regression model (Cameron & Trivedi, 2005). Specifically we address potential confounding effects that could follow from the outcome effect through inclusion of performance on the two objective measures in the regression equation.

⁹ Since time series behaviour of sales can possibly be described by a random walk model, the resulting stochastic trend can cause some econometrical problems such as non-normal distributions of t-statistics and spurious regression (Verbeek, 2004). To address potential concerns, for the respective levels model we define the change in sales as the dependent variable instead of a specification with current sales as the dependent variable and lagged sales as an independent variable.

targeted sales and labor hours data, data about the ratings on the compliance with directives, and shop manager staffing data from October 2001.

Table 5, panel A reports the results from the regressions where we examine the impact of directive scores on sales while controlling for performance on two objective measures (sales variance and labour hours). Panel A shows that receiving a favourable compliance scorers on directives (relative to receiving an adverse compliance scores) is associated with a €36K increase in current sales ($p < 0.1$). In terms of the percentage change model, we find that receipt of an equivalent directive scores outcome (relative to receipt of a worse evaluation) is associated with 5.8% current sales increase ($p < 0.05$).

5.3 Effects of compliance on future sales

The second set of analyses examines whether compliance scores of retail shop managers are positively associated with sales performance in the subsequent year. Because of limited data availability we examine the predictive ability of directive compliance scores evaluations five months onwards from the moment that performance appraisal interviews are held (at the beginning of October for each budget year). This is consistent with prior retail studies which argue that a frequent repurchase cycle and relatively low customer switching costs imply short time lags between the experience of customers and observed changes in purchase behaviour and therefore economic performance (Ittner & Larcker, 1998). We test the following levels model¹⁰:

$$\Delta \text{FSALES}_{i,t+1} = \lambda_0 + \lambda_1 \text{COMPLIANCE_G}_{i,t} + \lambda_2 \text{COMPLIANCE_M}_{i,t} + \mu_{i,t}, \quad (6)$$

where $\Delta \text{FSALES}_{i,t+1}$ denotes the change in sales for shop i from the first one up to five month(s) of sales of year $t+1$ relative to the first one up to five month(s) of sales of

year t (formally described as $(\sum_{m=1}^{1,2,3,4,5} A_{i,t+1,m} - \sum_{m=1}^{1,2,3,4,5} A_{i,t,m})$), where A denotes actual sales,

$t+1$ and t denote respectively budget year $t+1$ and budget year t , and m denotes the

¹⁰ In order to address concerns similar to those expressed in footnote 9, for the respective levels model we define the change in sales as the dependent variable instead of a specification with next period sales as the dependent variable and current period sales as an independent variable.

monthly periods in the respective budget year with $m = 1, \dots, 12$) for shop i . This analysis is restricted to those observations that have the same shop manager for shop i in the subsequent year. Besides a levels model, a percentage change model is used that is defined as follows:

$$\begin{aligned} \% \Delta \text{FSALES}_{i,t+1} = & \lambda_0 + \lambda_1 \Delta \text{COMPLIANCE_G}_{i,t} + \lambda_2 \Delta \text{COMPLIANCE_M}_{i,t} \\ & + \lambda_3 \% \Delta \text{CSALES}_{i,t} + \mu_{i,t}, \end{aligned} \quad (7),$$

where $\% \Delta \text{FSALES}_{i,t+1}$ represents percentage change in sales in the first one up to five month(s) (formally described as $(\sum_{m=1}^{1,2,3,4,5} A_{i,t+1,m} - \sum_{m=1}^{1,2,3,4,5} A_{i,t,m}) / \sum_{m=1}^{1,2,3,4,5} A_{i,t,m})$ for shop i from period $t+1$ relative to period t , and $\% \Delta \text{CSALES}_{i,t+1}$ denotes percentage change in sales

in the first one up to five month(s) (formally described as $(\sum_{m=1}^{1,2,3,4,5} A_{i,t,m} - \sum_{m=1}^{1,2,3,4,5} A_{i,t-1,m}) / \sum_{m=1}^{1,2,3,4,5} A_{i,t-1,m})$ for shop i from period t relative to period $t-1$. Note that this analysis is

restricted to observations that have the same shop manager for retail shop i for three consecutive years. We expect that $\lambda_1 > 0$ and $\lambda_2 > 0$. The regression equations (7) and (8) are estimated using OSL with 42 months of actual and targeted sales and labor hours data, data about ratings on compliance with directives, and shop manager staffing data from October 2001.

We report the results in Table 5, panel B1 and B2. The levels-model documented in panel B1 in general provides support for conclusion that complying with directives of shop managers is positively associated with subsequent sales performance in retail shops. Receipt of a favorable evaluation (relative to an adverse evaluation) is associated with successively €9K, €20K, €25K, €32K, and €36K increases in sales in the first one up to five months after evaluations of directives. Similar but less pronounced results are reported for the receipt of sufficient evaluations by shop managers. The percentage change model documented in panel B2 however does not support our previous findings. Overall we interpret the evidence reported in panel A and B of table 4 to be partially consistent with our premise that compliance with directives is positively associated with both contemporaneous and subsequent sales performance of retail shops.

5.4 Effects of compliance on future targets

Finally we investigate whether target setting is based exclusively on information incorporated in the deviation from the target or that target setting is also based on the information reflected in evaluations on the compliance with directives. We employ the following unscaled model to examine this question:

$$\begin{aligned} \text{TARGET_UPDATE}_{i,t} = & \varphi_0 + \varphi_1 \text{DEV_TARGET}_{i,t} + \varphi_2 \text{COMPLIANCE_G}_{i,t} \\ & + \varphi_3 \text{COMPLIANCE_M}_{i,t} + w_{i,t}, \end{aligned} \quad (8),$$

where this analysis is restricted to observations that have the same shop manager for shop i in the consecutive year. Besides the levels model also a scaled model is defined where both accounting terms are defined in terms of percentages (i.e. divided by $B_{i,t}$) and the evaluations of compliance with directives are defined in terms of changes. This analysis is restricted to those observations that have the same shop manager for shop i for three consecutive years. We expect $\varphi_2 > 0$ and $\varphi_3 > 0$. Regression equations are estimated using OLS with 36 months of actual and sales target data, data about ratings on the compliance with directives, and shop manager-staffing data starting from October 2001. Table 5, panel C reports empirical results for the unscaled and scaled model. The coefficient that reflects the association between a favorable evaluation and subsequent target change (φ_2) is positive and significant ($p < 0.1$). The receipt of a favorable compliance evaluation over period $t-1$ is associated with a subsequent target change of €28K. The coefficients on the compliance evaluations in the scaled model are of the expected sign, but are not significant at conventional levels. Overall we interpret this evidence as partially consistent with the hypothesis that information incorporated in directives is used by the firm during target setting. This also makes sense if one keeps in mind that salary increases of managers are partially contingent on outcomes of the evaluations regarding the degree of compliance of retail shop managers with the prescribed guidelines. In order to improve the robustness of findings, we repeated the analyses in this section using heteroskedasticity- and autocorrelation-consistent standard errors (as described in the prior section)¹¹. Our results remain significant at conventional levels of significance.

¹¹ The application of Newey-West estimation for the majority of our percentage change models is equivalent to computation of heteroskedasticity-consistent standard errors.

The results for the scaled model of target change analyses improves in terms of significance, e.g. the coefficient on COMPLIANCE_G in the scaled model is quite close to significance ($p < 0.11$) (not tabulated).

6. Conclusions and limitation

In this paper we examine the working of a set of controls a retail firm puts in place to (1) motivate managers to take sales increasing actions that (2) curbs negative effects possibly associated with using these controls. We find that the firm faces conditions that would allow for ratcheting sales targets. We show evidence that the firm ratchets targets asymmetrically. We also find that despite the fact that the firm has provided shop managers with limited decision rights, they still are inclined to take measures that reduce the ratchet effect. Shop managers do not have discretion over prices and advertising. They are also incapable of using accruals to report lower performance to avoid that targets get ratcheted. The only action they can take is to directly decrease their effort underlying the sales levels. It appears that shop managers do resort to sales decreasing measures. We document that shop managers that report a favorable intermediate sales performance slow down sales in the final month. Furthermore we document that this specific behavior is only observed for shop managers that continue to operate as shop manager in the current shop. Shop managers that report a favorable intermediate sales performance and do not continue to operate as shop manager are not inclined to slow down sales in the final months. The total size of this effect amounts to 4% of annual business unit earnings.

Because firm management has strong opinions on how to increase sales, they not only ratchet targets, they also impose directives on shop managers. The directives refer to prescribed guidelines for appropriate actions of shop managers that are subjectively evaluated by their supervisors at the end of each budget year. These directives are defined in five performance areas: innovation, entrepreneurship, efficiency responsibility and cooperation. Compliance with these directives is allegedly positively related with sales. The shop manager's superiors subjectively establish compliance with the directives. We examine to what extent these compliance ratings are associated with improved contemporaneous and subsequent sales performance. Despite that the subjective evaluations are likely to be imperfect representations of shop managers' choices (Baker, 2002), we find some evidence that suggests that the

subjective assessment of compliance with directives is positively associated with current and future sales performance. We also find that the firm uses information incorporated in compliance scores during the target setting process, i.e. current good compliance performance is positively associated with next period's sales targets. This is consistent with firm policies where salary increases are also contingent (weight 50%) on the compliance scores.

This study is subject to limitations. One important caveat is the restricted external validity. This quantitative field study enables us to examine this kind of management accounting phenomena (real economic performance consequences of target setting and the use of organizational directives in conjunction with objective performance measures) in-depth combined with the use of archival data from the firm's records. Contextual findings however limit the degree in which the findings can be generalized to different settings. We believe that our findings do advance our knowledge into the working of controls in firms. Especially in firms where local management's decision rights are low and strict directives apply.

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Appendix 1: Directive areas

Dimension	Description
Innovation	<ul style="list-style-type: none"> • Identify relevant changes in the environment of your retail shops, think about creative ways to address challenges within retail shops, and provide ideas to/initiate discussion with your cluster manager. • Seek alternative ways to fulfill customers' needs and inform customers about new goods and services.
Entrepreneurship	<ul style="list-style-type: none"> • Communicate clearly (e.g. free of jargon) to customers and always keep the best interest of customers in mind. • Increase your availability for customers and sales assistants and address everyday problems (e.g. traffic at cash registers) in a timely manner.
Efficiency	<ul style="list-style-type: none"> • Translate the impact of each decision in terms of costs and sales and act accordingly. • Prioritize operations within the sales team such that arrangements with customers are always met.
Responsibility	<ul style="list-style-type: none"> • Display an active attitude and behavioral pattern that is inspiring for your sales assistants. • Be able to explain the relationship between your actions and the targeted retail shop results (and consider potential side effects that can follow from actions chosen).
Cooperation	<ul style="list-style-type: none"> • Provide timely and clear feedback to your sales assistants such that sales assistants know exactly what is expected from them. • Create an atmosphere where sales assistants provide feedback about each other's performance, ensure that sales assistants remain confident about their own abilities, and promote sales assistants working together.

Table 1**Panel A: Continuous variables (€)**

Measure	Mean	Median	Std.dev.
Target sales	844968	760000	398835
Actual sales	844939	763731	394689
Budget labour hours	5925	5415	1800
Actual labour hours	5712	5146	1886
Sales variance	-29	5127	96956
Sales Target change	54212	52000	113059

Panel B: Discrete variables

Measure	Percentage	
Retail shops with sales target variance < 0	46.44%	
Scores on compliance with directives	A	26%
	B	66%
	C	8%

Table 2: Likelihood that last year performance is exceeded in the next year

Table reports regression estimates from a pooled OLS regression of both an unscaled model and scaled model, where the unscaled model is described by equation (1). ΔSALES_t represents the sales change from period t relative to period $t-1$, $\%\Delta\text{SALES}_t$ represents the percentage change in sales from period t relative to period $t-1$, DEV_TARGET_{t-1} denotes the deviation from the sales target in period $t-1$, $\text{REL_DEV_TARGET}_{t-1}$ denotes the deviation from the sales target in period $t-1$ expressed as a percentage of sales target in period $t-1$, and DUMG_{t-1} is an indicator variable equal to one if the deviation from the sales target > 0 in period $t-1$, zero otherwise.

Dependent variable		ΔSALES_t	$\%\Delta\text{SALES}_t$
Model specification	Prediction	Unscaled model	Scaled model
Intercept		55941 ^{***} (5.39)	6.0268 ^{***} (5.31)
DEV_TARGET_{t-1}		0.2059 [*] (1.76)	--
DUMG_{t-1}		- 56310 ^{***} (-4.02)	- 1.9333 (-1.29)
DEV_TARGET_{t-1} * DUMG_{t-1}		0.8196 ^{***} (4.79)	--
$\text{REL_DEV_TARGET}_{t-1}$		--	0.0398 (0.33)
$\text{REL_DEV_TARGET}_{t-1}$ * DUMG_{t-1}			0.4045 ^{***} (2.67)
# of observations		497	497
Adjusted R ²		0.12	0.05
F-statistic		24.15 ^{***}	8.85 ^{***}

, **, *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).

Table 3: Asymmetric target ratcheting

Table reports regression estimates from a pooled OLS regression of both an unscaled model and scaled model, where the unscaled model is described by equation (2). $TARGET_UPDATE_t$ denotes the sales target change from period $t+1$ relative to period t , DEV_TARGET_{t-1} denotes the deviation from the sales target in period t , $REL_DEV_TARGET_t$ denotes the deviation from the sales target in period t expressed as a percentage of the sales target in period t , and $DUMB_t$ is an indicator variable equal to one if the sales variance < 0 in period t , zero otherwise.

Dependent variable		$TARGET_UPDATE_t$	
Model specification	Prediction	Unscaled model	Scaled model
Intercept		40759*** (10.90)	5.433*** (13.81)
DEV_TARGET_t	+	1.170*** (22.01)	--
$DUMB_t * DEV_TARGET_t$	-	- 0.237*** (-3.44)	--
$DUMB_t$		- 5443 (-1.01)	- 1.397** (-2.32)
$REL_DEV_TARGET_t$	+	--	1.157*** (30.34)
$DUMB_t * REL_DEV_TARGET_t$	-	--	-0.224*** (-3.66)
# of observations		496	496
Adjusted R^2		0.81	0.86
F-statistic		725.30***	1046.58***

*, **, *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).

Table 4: Incentive effects of target ratcheting

Table reports the regression estimates from a pooled OLS regression of a model described by equation (3). SHARE denotes the final three, two and one month(s) share of yearly sales, DGYTD is an indicator variable equal to one if departure from sales target in the first nine, ten or eleven months > 0, zero otherwise, DTRANSF is an indicator variable equal to one if the retail shop manager transfers to another shop, job or firm, zero otherwise.

Dependent variable		SHARE for final x =1,...,3 month(s)		
Model specification	Prediction	Model 1 (x = 3)	Model 2 (x = 2)	Model 3 (x = 1)
Intercept		0.2317*** (122.6)	0.1519*** (114.7)	0.0729*** (97.20)
DGYTD	-	- 0.0005 (-0.21)	- 0.0017 (-1.04)	- 0.0032*** (-3.54)
DTRANSF		0.0003 (0.09)	-0.0011 (-0.49)	-0.0025* (-1.84)
DGYTD* DTRANSF	+	0.0063 (1.48)	0.0060** (2.07)	0.0057*** (3.47)
# of observations		311	311	311
Adjusted R ²		0.02	0.02	0.05
F-statistic		2.66**	2.74**	6.48***

*, **, *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).

Table 5: Predictive abilities of directives

Panel A: Within-year analyses

This panel of table 4 reports the regression estimates from a pooled OLS regression of both a level and percentage change model described by equation (4) and (5) respectively. $\Delta SALES_t$ represents the sales change from period t relative to period t-1, $\% \Delta SALES_t$ represents the percentage change in sales from period t relative to period t-1, $COMPLIANCE_G_t$ is an indicator variable equal to one if the manager received a favorable evaluation on compliance on directives in period t, zero if not, $COMPLIANCE_M_t$ is an indicator variable equal to one if shop manager received sufficient evaluation on compliance on directives in period t, zero otherwise, $\% \Delta SALES_{t-1}$ represents the percentage change in sales from period t-1 relative to t-2, $SALESVAR_t$ denotes departure from sales target in period t, $LABOURVAR_t$ is the labour hours budget variance in period t, $\Delta COMPLIANCE_G_t$ is an indicator variable equal to one if the shop manager received a better evaluation on compliance in period t relative to period t-1, zero otherwise, $\Delta COMPLIANCE_M_t$ is an indicator variable equal to one if shop manager received an equivalent evaluation on compliance in period t relative to period t-1, zero otherwise, $\% \Delta SALESVAR_t$ represents the percentage change in departure from sales target from period t relative to period t-1, and $\% \Delta LABOURVAR_t$ represents the percentage change in labour hours budget variance from period t relative to period t-1

Dependent variable		$\Delta SALES_t$	$\% \Delta SALES_t$
Model specification	Prediction	Levels Model	Percentage change model
Intercept		53112 (6.36)	- 4.6929* (- 1.75)
$COMPLIANCE_G_t$	+	36118*** (3.22)	--
$COMPLIANCE_M_t$	+	1694 (0.19)	--
$\% \Delta SALES_{t-1}$		--	0.4459*** (4.63)
$SALESVAR_t$		0.7820*** (26.23)	--
$LABOURVAR_t$		3.3348 (0.91)	--
$\Delta COMPLIANCE_G_t$	+		4.0233 (1.22)
$\Delta COMPLIANCE_M_t$	+		5.7920** (2.19)
$\% \Delta SALESVAR_t$		--	0.0026* (1.98)
$\% \Delta LABOURVAR_t$		--	- 0.0001 (- 0.10)
# of observations		164	54
Adjusted R ²		0.84	0.33
F-statistic		217.35***	6.32***

* , ** , *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).

Panel B1: Subsequent-year analyses (levels models)

This panel of table 4 reports the regression estimates from a pooled OLS regression of a levels model described by equation (6). $\Delta\text{FSALES}_{t+1}$ represents sales change from the first one up to five month(s) of sales in period t+1 relative to the first one up to five month(s) of sales in period t, COMPLIANCE_G_t is an indicator variable equal to one if the shop manager received a favorable evaluation on compliance on directives in period t, zero otherwise, and COMPLIANCE_M_t is an indicator variable equal to one if the shop manager received a sufficient evaluation on the compliance in period t, zero otherwise.

Dependent variable		$\Delta\text{FSALES}_{t+1}$ for first x =1,...,5 consecutive month(s)				
Model specification	Prediction	Model 1 (x=1)	Model 2 (x=2)	Model 3 (x=3)	Model 4 (x=4)	Model 5 (x=5)
Intercept		-2126 (-0.99)	-4176 (-0.89)	-2014 (-0.28)	-5745 (-0.60)	-6860 (-0.58)
COMPLIANCE_G _t	+	8506*** (3.40)	20367*** (3.74)	25336*** (3.03)	32396*** (2.90)	35896*** (2.59)
COMPLIANCE_M _t	+	7480*** (3.27)	14145*** (2.84)	19182** (2.51)	23248** (2.27)	25836** (2.04)
# of observations		218	218	218	218	218
Adjusted R ²		0.05	0.06	0.03	0.03	0.02
F-statistic		6.18***	7.05***	4.59**	4.21**	3.36**

*, **, *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).

Panel B2: Subsequent-year analyses (percentage change models)

This panel of table 4 reports the regression estimates from a pooled OLS regression of a percentage change model described by equation (7). $\% \Delta \text{FSALES}_{t+1}$ represents the percentage sales change in the first one up to five month(s) from period t+1 relative to the first one up to five month(s) from period t, $\Delta \text{COMPLIANCE_G}_t$ is an indicator variable equal to one if the shop manager received a better evaluation on the compliance on directives in period t relative to period t-1, zero otherwise, $\Delta \text{COMPLIANCE_M}_t$ is an indicator variable equal to one if the shop manager received an equivalent evaluation on the compliance on directives in period t relative to period t-1, zero otherwise, and $\% \Delta \text{CSALES}_t$ represents the percentage sales change in the first one up to five month(s) from period t relative to the first one up to five month(s) from period t-1.

Dependent variable		$\% \Delta \text{FSALES}_{t+1}$ for first x = 1, ..., 5 consecutive month(s)				
Model specification	Prediction	Model 1 (x=1)	Model 2 (x=2)	Model 3 (x=3)	Model 4 (x=4)	Model 5 (x=5)
Intercept		7.5594*** (3.17)	2.4921 (0.98)	4.4513** (2.06)	2.7316 (1.23)	3.7176 (1.52)
$\Delta \text{COMPLIANCE_G}_t$	+	4.8683 (1.18)	0.9122 (0.23)	0.8107 (0.22)	0.0685 (0.02)	- 0.9342 (- 0.23)
$\Delta \text{COMPLIANCE_M}_t$	+	0.4694 (0.16)	- 2.9031 (-1.05)	- 2.8815 (-1.14)	- 2.7422 (-1.08)	- 3.4233 (-1.21)
$\% \Delta \text{CSALES}_t$		- 0.1605 (-1.45)	0.1655 (0.98)	0.0924 (0.86)	0.1204 (1.12)	0.0677 (0.58)
# of observations		94	94	94	94	94
Adjusted R ²		0.01	0.01	0.01	0.01	0.01
F-statistic		1.25	1.13	0.81	0.80	0.58

*, **, *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).

Panel C: Target change analyses

This panel of table 4 reports regression estimates from a pooled OLS regression of both an unscaled model and scaled model, where the unscaled model is described by equation (8). $TARGET_UPDATE_t$ denotes the change in budget target sales from period $t+1$ relative to period t , DEV_TARGET_t denotes the sales budget variance in period t , $REL_DEV_TARGET_t$ denotes the sales budget variance in period t expressed as a percentage of the sales budget in period t , $COMPLIANCE_G_t$ is an indicator variable equal to one if the shop manager received a favorable evaluation on the compliance on directives in period t , zero otherwise, $COMPLIANCE_M_t$ is an indicator variable equal to one if the shop manager received a sufficient evaluation on the compliance on directives in period t , zero otherwise, $\Delta COMPLIANCE_G_t$ is indicator variable equal to one if shop manager received a better evaluation on the compliance on directives in period t relative to period $t-1$, zero otherwise, and $\Delta COMPLIANCE_M_t$ is an indicator variable equal to one if shop manager received an equivalent evaluation on compliance on directives in period t relative to period $t-1$, zero otherwise.

Dependent variable		$TARGET_UPDATE_t$	
Model specification	Prediction	Unscaled model	Scaled model
Intercept		46646*** (3.79)	5.6064*** (9.35)
DEV_TARGET_t		0.9463*** (19.70)	--
$COMPLIANCE_G_t$	+	28027* (1.94)	--
$COMPLIANCE_M_t$	+	13685 (1.03)	--
$REL_DEV_TARGET_t$		--	1.0055*** (23.12)
$\Delta COMPLIANCE_G_t$	+	--	1.3488 (0.99)
$\Delta COMPLIANCE_M_t$	+	--	0.8047 (1.02)
# of observations		152	53
Adjusted R^2		0.76	0.92
F-statistic		162.33***	188.22***

*, **, *** is statistically significant at respectively 10%, 5%, and 1% level (two-tailed).