DO MANAGERS' DELIBERATE DECISIONS INDUCE STICKY COSTS?

by

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Working Paper No 16/2011 November 2011

Research No. 02010100

This paper was partially financed by the Henry Crown Institute of Business Research in Israel.

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August 2011

Abstract

This study explores motivations underlying managers' resource adjustments. We focus on the impact of incentives to meet earnings targets on resource adjustments and the ensuing cost structures. Findings indicate that facing incentives to avoid losses and earnings decreases or to meet financial analysts' earnings forecasts managers expedite downward adjustments of slack resources when sales fall. These deliberate decisions lessen the degree of cost stickiness rather than induce cost stickiness. The results suggest that efforts to understand determinants of firms' cost structures should be made in light of the managers' motivations, particularly agency-driven incentives underlying resource adjustment decisions.

Do managers' deliberate decisions induce sticky costs?

1. Introduction

This study is part of a recently emerging stream of research aiming to expand our understanding of how managerial choices in adjusting resources influence firms' cost structures (Kallapur and Eldenburg, 2005; Banker, Ciftci and Mashruwala, 2010; Banker, Huang, and Natarajan. 2011; Chen, Lu and Sougiannis, 2011). It follows Anderson, Banker and Janakiraman (2003, p. 47), hereafter ABJ, who termed costs as *sticky* if they decrease *less* when sales fall than they increase when sales rise by an equivalent amount, arguing that sticky costs occur "*because managers deliberately adjust the resources committed to activities*." Focusing on deliberate decisions made by self-interested managers, we investigate how resource adjustments made intentionally to meet earnings targets affect the degree of cost stickiness.

When sales fall, some committed resources are not utilized unless managers make the intentional decision to remove them. ABJ argue that managers hesitate to remove slack resources when they expect a sales drop to be temporary. In this case, refraining from resource cuts when sales fall maximizes firm value because of the high costs of restoring resources when demand bounces back (Abel and Eberly, 1994). Self-interested managers, however, consider their personal utility when they adjust resources committed to activities, not only the value of the firm (Roychowdhury, 2006; Cohen, Dey and Lys, 2008).

Facing incentives to meet earnings targets, self-interested managers are likely to accelerate cuts of slack resources in response to a sales drop even if the drop is expected

to be temporary. These accelerated cuts of slack resources result in greater cost decreases in the presence of earnings targets than in the absence of such incentives. Therefore, based on the ABJ concept of sticky costs, incentives to meet earnings targets are likely to lessen the degree of cost stickiness. We hypothesize that resource adjustments made intentionally to meet earnings targets diminish the degree of cost stickiness.

The empirical findings, based on a sample of 97,547 firm-year observations, indicate that resource adjustments made to avoid losses, to avoid earnings decreases, and to meet financial analysts' earnings forecasts significantly moderate the degree of cost stickiness. In some contexts, cost stickiness is washed away in the presence of these incentives. Several analyses and robustness checks corroborate this evidence. Overall, the results suggest that the incentives to meet earnings targets lead to deliberate resource adjustments that diminish cost stickiness.

We also utilize the Banker, Ciftci and Mashruwala (2010), hereafter BCM, framework to test the relationship between incentives to meet earnings targets and the degree of cost stickiness conditional on managers' demand expectations. Facing incentives to meet earnings targets, managers are predicted to cut slack resources even if they have optimistic demand expectations and these resources are likely to be required for supplying future demand growth. The findings support the prediction, showing that incentives to meet earnings targets significantly diminish the degree of cost stickiness after controlling for managers' demand expectations. Taken as a whole, the empirical evidence suggests that managers intentionally adjust resources to meet earnings targets, which lessens the degree of cost stickiness.

The findings contribute by expanding our understanding of how deliberate decisions influence asymmetric cost behavior. They demonstrate that incentives to meet earnings targets lead managers to accelerate resource cuts when sales fall. That is, agency-driven incentives influence deliberate choices, which, in turn, affect the degree of cost stickiness. The results emphasize the role of deliberate decisions in shaping the asymmetry of firms' cost structures.

Prior studies (ABJ, Balakrishnan, Peterson and Soderstrom, 2004; Balakrishnan and Gruca, 2008; BCM) document how managerial choices made to maximize firm value induce cost stickiness. Chen et al. (2011) show that agency-driven incentives to build empires also induce sticky cost behavior. Our findings, however, suggest that agency-driven incentives to meet earnings targets diminish the degree of cost stickiness, rather than induce cost stickiness. We conclude that some deliberate decisions induce sticky costs while others diminish sticky costs, depending on the underlying motivations.

We note that any effort to infer the sources of sticky costs should be made in light of motivations underlying managers' resource adjustments. Ignoring the impact of agency considerations on documentations of sticky cost behavior may bias the inferences due to an omitted correlated variable problem.

The findings also extend the real earnings management literature by documenting how managers adjust resources to meet earnings targets. Therefore, the implications are likely to expand the audience of the cost structure literature beyond management accounting scholars and attract the attention of financial accountants. In sum, the paper integrates a typical management accounting research topic, cost structures, with an important

financial accounting topic, real earnings management. The importance of integrating these two streams of research has long been recognized (Weiss, 2010).

The paper proceeds as follows. The hypothesis is developed in the next section. Sections 3 and 4 discuss the sample selection and research design, respectively. Sections 5 and 6 present the empirical results, and Section 7 summarizes.

2. Hypothesis Development

Understanding how deliberate managerial decisions to adjust resources shape firms' cost structures is of primary interest to accounting researchers. In particular, choices to cut resources made by self-interested managers have recently drawn much attention. Banker et al. (2011) show a positive association between grants of equity incentives and increases in input resource spending when input resource expenditures create high future value. Their findings suggest that equity incentives influence managers' decisions to adjust resources, but they do not explore the potential impact of equity incentives on the extent of cost asymmetry. Focusing on agency aspects, Chen et al. (2011) document how empire building incentives affect managers' cost decisions made in response to exogenous demand shocks. They show that empire building managers increase sales, general and administrative (SG&A) costs rapidly when sales rise and decrease these costs slowly when sales fall. That is, empire building incentives generate cost asymmetry, implying a positive relation between an agency problem and the degree of SG&A cost asymmetry.[1]

[1] Dierynck and Renders (2009) use a sample of Belgian private companies and report that small profits and small earnings increases enhance the asymmetry of labor costs.

A vast body of evidence indicates that agency considerations lead managers to reduce costs to meet various benchmarks (Dechow and Sloan, 1991; Baber, Fairfield and Haggard, 1991; Bushee, 1998). Particularly, Graham, Harvey and Rajgopal (2005), Roychowdhury (2006), Cohen et al. (2008), and Keung, Lin and Shia (2010) report that managers reduce costs to avoid losses and earnings decreases, or to meet analyst forecasts. However, the influence of cost reductions made intentionally to meet earnings targets on the degree of cost asymmetry has not yet been investigated.

When sales fall, unutilized resources are not eliminated unless managers make a deliberate decision to remove them. A stochastic demand leads mangers to evaluate the likelihood that a drop in sales is temporary when deciding whether to cut resources. As cutting slack resources when sales fall is likely to result in the incurring of extra costs to replace those resources if sales are restored in the future, value-maximizing considerations based on the future sales expectations lead managers to maintain unutilized resources when they expect a sales drop to be temporary. Retaining unutilized resources when sales decline results in costs that decrease *less* when sales fall than they increase when sales rise by an equivalent amount; i.e., sticky costs (ABJ).

In this paper, we investigate the relationship between resource adjustments made intentionally to meet earnings targets and the degree of cost stickiness. ABJ claim that when sales fall, some committed resources are not utilized unless managers make the deliberate decision to remove them. Following ABJ, we assume that incentives to meet earnings targets lead managers to accelerate resource cuts to achieve cost savings. These

accelerated cuts of slack resources when sales fall lead to greater cost decreases in the presence of earnings targets than absent those incentives. For this reason, we hypothesize that cost stickiness is lessened in the presence of incentives to meet earnings targets.

H: *Resource adjustments made intentionally to meet earnings targets diminish cost stickiness.*

Facing earnings targets, the degree of cost stickiness is diminished because managers expedite cost cuts when sales fall. This managerial behavior expresses a form of agency costs, which are incurred because self-interested managers, motivated to meet earnings targets, make decisions to maximize their personal utility, not firm value. Managers are likely to eliminate slack resources when facing incentives to meet earnings targets and sales fall, even if they expect the sales drop to be temporary. Eliminating slack resources results in cost savings, which are imperative for meeting earnings targets.

When sales rise, however, incentives to meet earnings targets are expected to encourage managers to restrain hiring new resources and slow down growth in costs. Yet, we note two reasons that reduce the impact of those incentives under a rise in sales compared to a drop in sales.

First, bad news on missing earnings targets is more acute in the presence of additional bad news on sales decrease (Rees and Sivaramakrishnan, 2007). Managers are likely to be under more pressure to avoid reporting bad news on missing earnings targets when it is accompanied by bad news on sales decrease (Graham et al., 2005). Therefore, incentives to meet earnings targets create more pressure, and hence have more of an impact when they are accompanied by a drop in sales than by a rise in sales.

Second, suppose a manager faces incentives to avoid losses, which is one of the earnings targets frequently used in the literature (e.g., Burgstahler and Dichev, 1997). If a firm has small positive earnings and a sales rise in the current year, it likely experienced losses in the prior year since sales in the prior year were lower. Therefore, the manager has probably already cut slack resources in the prior year to reduce the losses. In this case, there is less slack left to cut in the current year. On the other hand, if a firm has small positive earnings and a sales drop in the current year, it likely experienced larger positive earnings in the prior year since sales in the prior year were higher. In this case, the manager was under less pressure to cut slack resources in the prior year. Therefore, there is more slack left to cut in the current year in the presence of a drop in sales than in the presence of a rise in sales. Overall, the relative impact of incentives to meet earnings targets when sales fall is likely to be greater than when sales rise.

ABJ focus on the downside in measuring cost stickiness, assuming that costs change in a mechanistic way on the upside. Incentives to meet earnings targets, however, may lead to deliberate resource adjustment in both favorable and unfavorable scenarios. In the next section, we extend ABJ's approach to allow for testing the impact of deliberate resource adjustments made in both scenarios on the degree of cost stickiness. In testing the hypothesis we expect to find that resource adjustments made intentionally to meet earnings targets diminish cost stickiness.

3. Research Design

Investigating the impact of managerial discretion motivated by incentives to meet earnings targets on cost stickiness, we expand and utilize the ABJ framework

accompanied by a battery of additional analyses to test the hypothesis. We focus on operating costs to capture managerial choices affecting the costs of manufacturing goods, the costs of providing services and the costs of marketing and distribution. Our approach is consistent with Balakrishnan, Petersen and Soderstrom (2004), Balakrishnan and Gruca (2008) and Weiss (2010). We employ operating costs (OC), annual sales revenue minus income from operations, for estimating the regression models. For the ABJ framework, the independent variables are log change of sales revenue (REV), and log change of REV multiplied by a dummy variable that equals 1 if $REV_{it}<REV_{i,t-1}$ and 0 otherwise ($REVDEC_{it}$). The estimated regression model is:

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \beta_2 \, REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it} \qquad (1)$$

In estimating all the cross-sectional regression models, we employ pooled cross-sectional regressions, include annual indicator variables, and cluster observations by firm to eliminate autotcorrelation and heteroscdasticity as suggested by Petersen (2009). As a sensitivity check, we also estimate the regression models as in Fama and MacBeth (1973).

In the ABJ framework, the coefficient β_1 measures the level of variable costs,[2] indicating the variation of operating costs with sales revenue. Therefore, $\beta_1+\beta_2$ measures the percentage change in operating costs resulting from a 1% decrease in sales revenue. ABJ and a series of subsequent studies report a significantly positive coefficient β_1, and a significantly negative coefficient β_2 using various samples and contexts. ABJ claim that a

[2] We use the *level of variable costs* to express the percentage increase in costs with a 1% increase in sales revenue (ABJ, p. 52).

significantly negative coefficient β_2 conditional on positive coefficient β_1 indicates sticky costs.

3.1 SUB-SAMPLE ANALYSES

Testing whether resource adjustments made intentionally to meet earnings targets diminish cost stickiness, we follow Burgstahler and Dichev (1997), Roychowdhury (2006) and Cohen et al. (2008) in identifying the presence of such incentives. These studies argue that firm-years in the interval just right of zero tend to reduce their costs to report income marginally above zero.

Thus, we group firm-years into intervals based on net income before extraordinary items scaled by market capitalization at the beginning of the year. To increase the power of our tests, we concentrate on firm-year observations in the interval to the immediate right of zero. Following prior studies, observations in this interval are assumed to have incentives to meet earnings targets; i.e., have net income scaled by market capitalization that is greater than or equal to zero but less than or equal to 0.01. Similarly, we identify incentives to avoid earnings decreases by grouping firm-years into intervals based on changes in net income scaled by market capitalization at the beginning of the year. Again, the interval width is 0.01 and we concentrate on firm-years in the interval to the immediate right of zero.

We estimate model (1) for sub-samples of observations with and without incentives to avoid losses. The estimated coefficients β_2 support the hypothesis if β_2 is significant and negative absent incentives to meet earnings targets and significantly closer to zero in the presence of the incentives. We repeat the procedure for sub-samples of observations with

and without incentives to avoid earnings decreases.

3.2 COMPREHENSIVE REGRESSION MODELS

ABJ focus on cost response when sales fall to establish the concept of cost stickiness assuming costs mechanistically change on the upside.[3] In this paper we explore how incentives to meet earnings targets influence intentional resource adjustments when sales decrease as well as when sales increase. We extend the ABJ approach to gain insights on the effect of resource adjustments made intentionally to meet earnings targets when sales either fall or rise on the degree of cost stickiness. Specifically, we extend model (1) by adding interaction terms to gain insights on the relative impact of incentives to meet earnings targets on decisions to adjust resources when sales either fall or rise.

We also add control variables employed in prior studies. First, ABJ report less sticky costs in periods where revenue also declined in the preceding period. The reason for this is that managers are likely to consider a revenue decline to be more permanent when it occurs in a second consecutive period of revenue declines, providing a motivation to scale down resources. Thus, we control for successive revenue decreases. Second, adjustment costs tend to be higher when the firm relies more on self-owned assets and employees than on materials and services purchased from external suppliers. Following prior studies, we control for asset intensity and employee intensity.

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[3] ABJ argue that some adjustment costs are non-monetary, including loss of morale among remaining employees when colleagues are fired and erosion of intangible capital. Nevertheless, incentives to meet earnings targets lead to cutting reported costs.

We estimate the following regression model to test the impact of (i) incentives to avoid losses, (ii) incentives to avoid earnings decreases, and (iii) incentives to avoid losses or to avoid earnings decreases on the degree of cost stickiness:

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \gamma_0 TARGET_{it} + \left\{\beta_1 + \gamma_1 TARGET_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \left\{\beta_2 + \gamma_2 TARGET_{it}\right\} REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] \quad (2)$$
$$+ \left\{\delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it},$$

where

$TARGET_{it} = \{LOSS_{it}, EDEC_{it}, LOSS_{it} \cup EDEC_{it}\}$, such that:

$LOSS_{it}$ is a dummy variable that equals 1 if annual earnings deflated by market value at the beginning of the year is in the interval (0, 0.01), and 0 otherwise.

$EDEC_{it}$ is a dummy variable that equals 1 if the change in annual earnings deflated by market capitalization of shareholders equity at prior year end is in the interval (0, 0.01), and 0 otherwise.

$LOSS_{it} \cup EDEC_{it}$ is a dummy variable, termed 'alternate targets', that equals 1 if $LOSS_{it}=1$ or $EDEC_{it}=1$, and 0 otherwise.

Control variables are as follows: SUC_DEC_{it} is a dummy variable that equals 1 if revenue in year t-1 is less than in year t-2 and 0 otherwise. $ASSINT_{it}$ is the log of the ratio of total assets to sales revenues, and $EMPINT_{it}$ is the log of the ratio of the number of employees to sales revenue.

The coefficients γ_1 and γ_2 indicate the impact of incentives to meet earnings targets on resource adjustments when sales rise and when sales fall, respectively. A positive γ_2

indicates that managers expedite cost cuts in response to incentives to meet earnings targets and sales fall. As for sales rise, a negative γ_1 indicates that managers restrain cost increases in response to incentives to meet earnings targets.

We extend the ABJ approach for testing whether incentives to meet earnings targets result in a lower degree of cost stickiness. Specifically, we present a formal test to examine whether incentives to meet earnings targets moderate the regular degree of cost stickiness measured by β_2.[4] We keep in mind that higher values (less negative) of β_2 indicate a lower degree of cost stickiness.

Suppose incentives to meet earnings targets lead managers to speed up cost cuts when sales fall ($0<\gamma_2$) and slow down cost increases when sales rise ($\gamma_1<0$). Then the difference between the percentage decrease in costs for a decrease in sales and the percentage increase in costs for an equivalent increase in sales becomes smaller than in the absence of these incentives. That is, if $\gamma_1<0$ and $0<\gamma_2$ then $\beta_2 + \gamma_2 - \gamma_1 > \beta_2$. When this condition holds, the degree of cost stickiness in the presence of incentives to meet earnings targets ($\beta_2 + \gamma_2 - \gamma_1$) is lower than the degree of cost stickiness in the absence of these incentives (β_2).

However, the condition $\gamma_1<0$ and $0<\gamma_2$ is too strict for testing the hypothesis. The regular degree of cost stickiness, β_2, is lessened if $0 < \gamma_2 - \gamma_1$ conditional on positive γ_2. We note that if $0\leq\gamma_1$ and $0<\gamma_2$ then the two effects work in opposite directions, but the degree of cost stickiness is lessened if the magnitude of the downside effect is significantly larger than the counter-effect on the upside (i.e. $\gamma_1<\gamma_2$). Therefore,

[4] As in ABJ, β_2 is conditional on a positive coefficient β_1 throughout the study.

responding to incentives to meet earnings targets by increasing costs less when sales rise than reducing costs when sales fall is a sufficient condition for a lower degree of cost stickiness. We apply the condition $0<\gamma_2$ and $\gamma_1<\gamma_2$ for testing the hypothesis.

We perform sensitivity analyses to reconfirm that the findings are not affected by technical estimation problems. Specifically, we check whether firm size affects the results by splitting the sample observations into small and large firms (below and above the median) and replicate the estimation of regression model (2) for the two groups. Additionally, to assure that findings are not driven by industry-specific characteristics, we control for potential industry-specific effects using Kenneth French's 12-industry classification (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

3.3 INCENTIVE TO MEET FINANCIAL ANALYSTS EARNINGS FORECASTS

We expand the span of incentives to meet earnings targets by utilizing financial analysts' earnings forecasts. Testing the hypothesis using earnings targets set by financial analysts is important despite the sample size limitation imposed by requiring the availability of at least two financial analysts' earnings forecasts. Specifically, we estimate the comprehensive regression model (2), where TARGET is a dummy variable that equals one if the analyst forecast error (actual minus forecast earnings per share) reported in IBES is between zero and one cent. As before, the hypothesis is supported if $0<\gamma_2$, and $\gamma_1<\gamma_2$.

3.4 EARNINGS TARGETS IN CONSECUTIVE PERIODS

We further test the impact of facing similar incentives to meet earnings targets in two consecutive periods, t and t-1, on the relationship between current incentives to meet earnings targets and the degree of cost stickiness. If managers faced incentives to meet an earnings target in the prior period and, therefore, already cut the slack resources, then there is less slack left to cut in the current period. This case is of particular interest, because the extent of cost stickiness is expected to be left unchanged in the presence of incentives to meet earnings targets and sales fall. In this case, which is an exception to the hypothesis, there are no slack resources to cut and cost stickiness is not expected to diminish. We add lagged TARGET to the estimation model:

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \gamma_0 TARGET_{it} + \psi_0 TARGET_{i,t-1} + \left\{\beta_1 + \gamma_1 TARGET_{it} + \psi_1 TARGET_{i,t-1}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right]$$
$$+ \left\{\beta_2 + \gamma_2 TARGET_{it} + \psi_2 TARGET_{i,t-1}\right\} REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \left\{\delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it}, \quad (3)$$

Following the earlier condition, we test if $0<\gamma_2+\psi_2$ and $\gamma_1+\psi_1<\gamma_2+\psi_2$. If cost stickiness is not diminished then the condition will not hold. Findings from estimating model (3) can potentially extend our understanding of the rationale underlying the relationship between incentives to meet earnings targets and cost stickiness.

3.5 THE BCM (2010) FRAMEWORK

The recently developed BCM framework provides alternative means for going beyond the ABJ assumption that cost behavior remains mechanistic when sales increase. BCM explore the role of managers' optimism with respect to future demand in shaping decisions to adjust resources on both favorable and unfavorable scenarios. They find that

managers' intentional choices affect costs in both directions, that is, when sales rise as well as when sales fall. Section 6 elaborates upon this new framework and utilizes it for testing our hypothesis.

4. Sample Selection and Descriptive Statistics

The sample includes all public firms covered by Compustat and CRSP during 1979-2006. We follow Burgstahler and Dichev [1997], ABJ and Roychowdhury [2006] in using annual data for our tests. We exclude financial institutions and public utilities (4-digit SIC codes 6000-6999 and 4900-4999) because the structure of their financial statements is incompatible with those of other companies. The sample includes firm-year observations with positive values for sales revenue, total assets, book value, and market value. We also require share price at fiscal year end to be greater than $1 and delete firm-year observations with missing data on two preceding years (t-1, t-2).

To limit the effect of extreme observations, each year we rank the sample according to the variables in the regression models and remove the extreme 0.5 percent of the observations on each side. We adjust dollar amounts for inflation as in Konchitchki (2010). The sample includes 97,547 firm-year observations for 11,758 different firms. Table 1 provides details on the sample selection.[5]

[Table 1 about here]

Comparing the descriptive statistics of our sample reported in table 2 with the ABJ

[5] Anderson and Lanen (2009) argue that cost stickiness should be conditional on the assumption that costs move in the same direction as sales revenue. Following their argument, we also use sample selection criteria in which we delete observations with costs moving in an opposite direction to revenues. The empirical results (not reported) are qualitatively similar.

sample, the firms in our sample are larger due to differences in sampling criteria (mean sales of $1,809 million compared to $1,277 million in ABJ). Yet, our sample shows similar frequency of sales declines (27.4% versus 27.0% in ABJ). Table 2 also presents descriptive statistics of the incentive dummy variables. There are 3,216 firm-year observations (3.3% of the sample) with incentives to avoid losses and 9,409 firm-year observations (9.7% of the sample) with incentives to avoid earnings decreases.

We also utilize a sample of 30,442 observations with available financial analysts' earnings forecasts. Of the sample, 6,423 observations (21.1%) are suspect firm-years with incentives to avoid missing analysts' earnings consensus forecasts (in line with Bartov and Cohen, 2009).

[Table 2 about here]

5. *Empirical Results*

5.1 SUB-SAMPLE ANALYSES

In the ABJ setting, the hypothesis predicts less sticky costs caused by resource adjustments made intentionally to meet earnings targets. Testing the hypothesis, results from estimating model (1) in sub-samples of observations with and without incentives to meet earnings targets are reported in table 3.[6] Given no incentives to avoid losses, the estimated value of β_2 is -0.0929, significantly different from zero at the 0.01 level (see panel A). That is, costs are sticky when managers are not motivated to avoid losses,

[6] The estimated coefficients β_1 differ across the regression models from those reported by ABJ because we use operating costs, whereas ABJ use SG&A costs.

consistent with ABJ's findings. However, the estimated value of β_2 in the presence of incentives to avoid losses is 0.0252, insignificantly different from zero (see panel A). That is, costs exhibit a symmetric pattern, not sticky, when managers are motivated to avoid losses, in contrast with ABJ's findings. The cost stickiness is washed away in the presence of incentives to avoid losses, consistent with the hypothesis.

Similarly, given no incentives to avoid earnings decreases, the value of β_2 is -0.0979, significantly different from zero at the 0.01 level (see panel B). Again, this result is consistent with ABJ's findings. However, the value of β_2 in the presence of incentives to avoid earnings decreases is 0.0525, insignificantly different from zero. Once more, cost stickiness is washed away in the presence of incentives to avoid earnings decreases, consistent with the hypothesis.

In the presence of incentives to avoid losses or avoid earnings decreases, managers cut costs at a faster rate than they do absent these incentives. The introduction of incentives to meet earnings targets washes away cost stickiness, resulting in symmetric costs. The findings are consistent with the hypothesis, indicating that incentives to meet earnings targets when sales fall diminish cost stickiness.

[Table 3 about here]

5.2 COMPREHENSIVE REGRESSION ANALYSES

We estimate model (2) to extend ABJ's approach. We start by replicating the ABJ model. Results reported in the third column of table 4 indicate that the estimated coefficient β_1 is 0.8326, positive and significantly different from zero at the 0.01 level, and the estimated coefficient β_2 is -0.2295, negative and significantly different from zero

at the 0.01 level. The results are consistent with prior studies (Weiss, 2010), indicating that operating costs are, on average, sticky.

Next, we estimate regression model (2) to test the effect of incentives to avoid losses, incentives to avoid earnings decreases, and alternate incentives (i.e., incentives to either avoid losses or avoid earnings decreases). Considering incentives to avoid losses, results reported in the fourth column of table 4 indicate that the estimated coefficient β_2 is -0.2332, significantly different from zero at the 0.01 level. The estimated coefficient γ_2 is 0.1218, positive and significantly different from zero at the 0.02 level. That is, incentives to avoid losses lead managers to expedite resource cutting in response to sales decline. The estimated coefficient γ_1 is -0.0144, negative but insignificantly different from zero. That is, managers do not significantly restrain their resource adjustments when sales rise in response to incentives to avoid losses. Testing the hypothesis, γ_2 is positive, and $\gamma_1 < \gamma_2$. The findings suggest that incentives to avoid losses result in resource adjustments that make costs less sticky than they are absent these incentives, in line with the hypothesis. We note that the phenomenon stems from the downside, not from the upside.

Considering incentives to avoid earnings decreases, results reported in the fifth column of table 4 indicate that the estimated coefficient γ_2 is 0.1748, positive and significantly different from zero at the 0.01 level. This result suggests that incentives to avoid earnings decreases lead managers to expedite cost cutting when sales fall. The estimated coefficient γ_1 is 0.0601, positive and significantly different from zero at the 0.01 level. This result suggests that incentives to avoid earnings decreases result in increasing costs when sales rise. Testing the hypothesis, γ_2 is positive and $\gamma_2 - \gamma_1 = 0.1748 - 0.0601 =$

0.1147 (significantly different from zero at the 0.01 level), hence $\gamma_2 > \gamma_1$. The results are consistent with the hypothesis.

Furthermore, we estimate model (2) with alternate incentives to either avoid losses or avoid earnings decreases. TARGET equals one if {LOSS=1 or EDEC=1}, and zero otherwise. Results reported in the sixth column of table 4 present positive coefficients, γ_2=0.1328, and γ_1=0.0408, both are significantly different from zero at the 0.01 level. Again, $\gamma_2 - \gamma_1$= 0.1328 - 0.0408 = 0.0920 (significantly different from zero at the 0.01 level). We find that γ_2 is significantly positive and $\gamma_2 > \gamma_1$, which is in line with the hypothesis. We note that the lower degree of cost stickiness is induced by downward adjustments of resources made to meet earnings targets when sales fall.

Overall, the findings from estimating the comprehensive regression models support the hypothesis by showing that incentives to meet earnings targets result in a lower degree of cost stickiness. That is, resource adjustments made intentionally to achieve earnings targets influence firms' cost structures. The results support evidence that the degree of sticky costs is influenced by managers' deliberate decisions motivated by agency considerations.

Interestingly, however, incentives to meet earnings targets encourage managers to expedite cost cuts when sales fall, but do not lead them to restrain cost growth when sales rise. If γ_1 and γ_2 are positive then the two effects work in opposite directions with respect to the degree of cost stickiness. Evidently, the magnitude of cost responses made intentionally to meet earnings targets when sales fall are significantly larger than those when sales rise, resulting in a lower degree of cost stickiness.

To gain a better understanding of a positive γ_1, we also examine whether managers are able to avoid losses or earnings decreases by increasing advertising expenses, which, in turn, increase sales. We estimate the extended ABJ model (2) in two sub-samples: (1) firms with advertising expenses, and (2) firms without advertising expenses. Results (not reported for brevity) indicate that advertising expenses lead to meeting earnings targets through increased sales (γ_1 is positive and significant). In contrast, firms without advertising expenses do not increase costs to meet earnings targets when sales increase (γ_1 is not significantly different from zero). Findings suggest that managers are able to avoid losses or avoid earnings decreases by increasing advertising expenses.

Results with respect to the control variables are in line with prior studies (ABJ, BCM). The estimated successive decreases in the sales revenue coefficient, SUC_DEC, are positive and significant. The estimated coefficients for asset intensity, ASINT, and employee intensity, EPMINT, are negative and significant. The results are generally in line with prior studies and demonstrate that the effects of incentives to meet earnings targets on sticky costs hold when controlled for determinants of sticky costs reported in the literature.

Several robustness checks are performed to reconfirm the evidence. First, we check the sensitivity of the findings to firm size. We split the sample observations into small and large firms (below and above the median of market value) and replicated the estimation of regression model (2) separately for small (below median) and large (above median) observations. The findings are reported in the seventh and eighth columns of table 4. The estimated coefficient is γ_2=0.1660 (significantly different from zero at the 0.01 level) for the small-firm sub-sample and γ_2=0.1269 (significantly different from zero

at the 0.01 level) for the large-firm sub-sample. For both small and large firms, the magnitude of the downside effect is significantly larger than the effect on the upside. We conclude that firm size does not affect the predicted phenomenon.

Second, we replicate the analyses (not tabulated for brevity) using the Fama-MacBeth estimation procedure for estimating regression model (2) instead of the clustering suggested by Petersen (2009). The findings are essentially the same. Third, to assure that findings are not driven by industry-specific characteristics, we control for potential industry-specific effects using Kenneth French's 12-industry classification. Findings indicate that the results are not driven by industry-specific effects.

Fourth, we check the robustness of the findings to employing an alternative earnings deflator (untabulated for brevity). Durtschi and Easton (2005, 2009) investigate distributions of scaled earnings and report differences between the shape of the distribution of earnings scaled by total assets and the shape of the distribution of earnings scaled by market capitalization. Therefore, we computed intervals of firm-years with incentives to meet earnings targets using earnings scaled by total assets (rather than market capitalization) and used them to replicate the above analyses. The findings are similar. Additionally, we also replicated the analyses using different interval sizes (of 0, 0.005 and 0, 0.02). The results remain essentially the same.

Taken as a whole, the evidence shows that incentives to meet earnings targets moderate the degree of cost stickiness. These effects are economically meaningful and statistically significant. The findings extend the literature by showing how decisions to adjust resources made by self-interested managers in the presence of incentives to avoid

losses and earning decreases diminish cost stickiness. In sum, the evidence suggests that deliberate decisions to meet earnings targets diminish the degree of cost stickiness.

[Table 4 about here]

5.3. INCENTIVE TO MEET FINANCIAL ANALYSTS' EARNINGS FORECASTS

Results from estimating model (1) (ABJ) in sub-samples of observations with and without incentives to meet financial analysts' consensus earnings forecasts are reported in panel A of table 5. Given no incentives to meet financial analysts' earnings forecasts, the estimated value of β_2 is -0.2007, significantly different from zero at the 0.01 level (see panel A). That is, costs are sticky when managers are not motivated to meet financial analysts' earnings forecasts. However, the estimated value of β_2 in the presence of incentives to avoid losses is -0.0962, insignificantly different from zero (see panel A). Consistent with the hypothesis, costs express a symmetric pattern, not a sticky one, when managers are motivated to meet financial analysts' earnings forecasts.

Results from estimating model (2), where TARGET expresses incentives to meet financial analysts' consensus earnings forecasts, are reported in panel B of table 5. The findings indicate that the estimated coefficient β_2 is -0.3076, negative and significantly different from zero at the 0.01 level, whereas the estimated coefficient γ_2 is 0.0875, positive and significantly different from zero at the 0.07 level. That is, incentives to meet financial analysts' consensus earnings forecasts lead managers to expedite resource cutting in response to sales fall. The estimated coefficient γ_1 is -0.0021, negative but insignificantly different from zero. Testing the hypothesis, γ_2 is positive and $\gamma_1 < \gamma_2$. The findings suggest that incentives to meet financial analysts' consensus earnings forecasts

result in resource adjustments that make costs less sticky than absent these incentives, in line with the hypothesis. As before, we note that the phenomenon stems from the downside, not from the upside.

[Table 5 about here]

5.4 EARNINGS TARGETS IN CONSECUTIVE PERIODS

Results from estimating model (3) shed light on the effect of incentives to meet earnings targets in a current period when these incentives also occurred in the prior period. Findings reported in table 6 indicate $\gamma_2 = 0.0660$, significantly different from zero at the 0.05 level, suggesting that current incentives to meet earnings targets and a fall in sales encourage managers to expedite resource cuts. However, facing incentives to meet earnings targets in the prior period reverses the direction of resource adjustment in the current period ($\psi_2 = -0.0562$, p=0.07). Testing the hypothesis, $\gamma_2 + \psi_2 = 0.0660 - 0.0562 = 0.0098$, is insignificantly different from zero. The difference $(\gamma_2 + \psi_2) - (\gamma_1+\psi_1) = 0.0098 - (0.0274 + 0.0079) = -0.0255$ is negative and significant at the 0.01 level. As predicted, the hypothesis is rejected in this case because $\gamma_2 + \psi_2$ is insignificant and $\gamma_2 + \psi_2 < \gamma_1+\psi_1$.[7]

The findings suggest that if managers face incentives to meet an earnings target in the prior period and, therefore, have already cut slack resources, there is no more slack left to cut in the current period. Therefore, the degree of cost stickiness is not diminished.

[Table 6 about here]

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[7] A non-positive estimate of $\gamma_2 + \psi_2$ **or** $\gamma_2 + \psi_2 < \gamma_1+\psi_1$ is sufficient for rejecting the hypothesis in this case.

6. The BCM Framework – Managerial Optimism

BCM recently offered a new framework for gaining further insights on sources of asymmetric cost behavior. While ABJ assume that managerial intervention only affects changes in costs when sales decrease, BCM further expand our understanding of asymmetric cost behavior by showing how intervention by managers affects cost changes in both directions. They find that managers' optimistic demand expectations are a key source of asymmetric cost behavior. Their results indicate that when managers are optimistic with respect to future demand, the stickiness in SG&A costs is stronger than that reported in ABJ. In contrast with ABJ's findings, if managers are pessimistic, then costs decrease more than they increase proportional to sales because pessimism magnifies the downward adjustment to costs, which results in a reversal of stickiness.

The BCM framework is essential for gaining additional insights on the relationship between incentives to meet earnings targets and the degree of cost stickiness. Pessimistic demand expectations are likely to aggravate the pressure managers face due to incentives to meet earnings targets and also motivate them to cut costs. Therefore, managers with pessimistic demand expectations are more likely to accelerate cost cuts when sales fall than those with optimistic demand expectations. Optimistic demand expectations, however, stand at odds with cutting resources which are likely to be required for supplying future demand. The BCM framework provides the means for testing the relationship between incentives to meet earnings targets and the degree of cost stickiness, conditional on the optimism or pessimism of managers' demand expectations.

Moreover, BCM facilitated directions of sales changes in consecutive periods as a proxy for optimism or pessimism in demand expectations. They find that the degree of cost stickiness depends on the direction of sales change in the prior period. Specifically, they find significant stickiness after a prior sales increase, and significant anti-stickiness after a prior sales decrease. The incentives variables (LOSS, EDEC) may be systematically correlated with the direction of sales change in the prior period, which is likely to affect cost stickiness. Supplementary findings corroborate the evidence by allowing the coefficients on LOSS and EDEC to vary depending on the direction of sales change in the prior period.

We build on the model suggested by BCM. Examining a two-period setting, two consecutive periods of sales increase (decrease) signal managerial optimism (pessimism) about future demand. An inconsistent change in the direction of sales signals uncertainty about future demand and managers are neutral. This model is similar to the model used in ABJ, except that BCM include four cases based on the sales change in current and previous periods, instead of the two cases used in the ABJ model, which is based on sales changes only in the current period. To estimate the impact of incentives on resource adjustments, we follow Model A in BCM and add interactions with the incentive variable, TARGET, as follows:

$$\begin{aligned}\Delta OC_{it} = {} & \beta_0 + \beta_1 \Delta REV_{it}\, REV\_INC_{it}\, REV\_INC_{i,t-1} + \beta_2 \Delta REV_{it}\, REV\_INC_{it}\, REV\_DEC_{i,t-1} \\ & + \beta_3 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_INC_{i,t-1} + \beta_4 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_DEC_{i,t-1} \\ & + \phi_1 \Delta REV_{it}\, REV\_INC_{it}\, REV\_INC_{i,t-1} TARGET_{it} + \phi_2 \Delta REV_{it}\, REV\_INC_{it}\, REV\_DEC_{i,t-1} TARGET_{it} \\ & + \phi_3 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_INC_{i,t-1} TARGET_{it} + \phi_4 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_DEC_{i,t-1} TARGET_{it.} + \eta_{it}\end{aligned} \quad (4)$$

where ΔOC is the log change in operating costs for firm i in year t (between year t and year t-1); and ΔREV is the log change in sales revenue. We include four dummy variables to distinguish each situation in terms of the direction of change in OC costs in current and prior periods for firm i. The REV_INC_{it} $REV\_INC_{i,t-1}$ dummy takes the value of 1 if sales revenue increases in both the current (between t-1 and t) and previous periods (between t-2 and t-1), and 0 otherwise. The REV_INC_{it} $REV\_DEC_{i,t-1}$ dummy takes the value of 1 if sales revenue increases in the current period but decreases in the previous period, and 0 otherwise. The REV_DEC_{it} $REV\_INC_{i,t-1}$ dummy takes the value of 1 when sales revenue decreases in the current period and increases in the previous period, and 0 otherwise. The REV_DEC_{it} $REV\_DEC_{i,t-1}$ dummy variable takes the value of 1 if sales revenue decreases for two consecutive periods, and 0 otherwise. $TARGET_{it}$ is $LOSS_{it} \cup EDEC_{it}$, which is a dummy variable, termed 'alternate targets', that equals 1 if $LOSS_{it}=1$ or $EDEC_{it}=1$ and 0 otherwise.

We employ pooled cross-sectional regressions, include annual indicator variables, and cluster observations by firm to eliminate autotcorrelation and heteroscdasticity as suggested by Petersen (2009).

In the second column of table 7 we report coefficient estimates from the replication of BCM, showing consistent results. Findings from estimating model (4), reported in the third column of table 7, indicate that the general pattern reported by BCM remains unchanged absent incentives to meet earnings targets. Introducing incentives to meet earnings targets, we find that the presence of earnings targets significantly affects managers' decisions to adjust resources when current sales fall. The coefficient estimates are $\phi_3 = 0.1281$ (significantly different from zero at the 0.01 level) and $\phi_4 = 0.1703$

(significantly different from zero at the 0.01 level). Yet, the coefficient estimates of ϕ_1 and ϕ_2 are insignificantly different from zero, suggesting that the presence of earnings targets does not encourage managers to restrain cost increases when current sales increase.

We follow BCM's approach in testing the relationship between incentives to meet earnings targets and the degree of cost stickiness. Specifically, the degree of stickiness in the presence of incentives to meet earnings targets is $(\beta_3 + \phi_3) - (\beta_1 + \phi_1) = (0.5605 + 0.1281) - (0.7649 + 0.0220) = -0.0983$. Comparing the degree of stickiness in the presence of incentives to meet earnings targets with the degree of stickiness absent incentives to meet earnings targets ($\beta_3 - \beta_1 = 0.5605 - 0.7649 = -0.2044$) reveals a largely significant difference (0.1061, significantly different from zero at the 0.01 level).[8] These findings suggest that incentives to meet earnings targets diminish the degree of cost stickiness after controlling for managers' demand expectations. Moreover, we conclude that these incentives influence managers' resource adjustments when they are accompanied by a drop in sales. Results from utilizing the BCM framework suggest that managers intentionally adjust resources to meet earnings targets, thereby lessening the degree of cost stickiness. Hence, the empirical evidence further supports the hypothesis.

[Table 7 about here]

[8] Consistent with BCM, the ABJ results are reversed under two consecutive sales decreases. We note that in the case of two consecutive periods of sales decreases, costs decrease more in the presence of incentives to meet earnings targets than absent those incentives ($\phi_4 = 0.1703$,p=0.01). That is, earnings targets enhance the reversal of cost stickiness, which is in line with our hypothesis.

7. Summary

In this study we examine how deliberate choices, motivated by agency-driven incentives, influence asymmetric cost behavior. We show that deliberate managerial choices made to meet earnings targets diminish, rather than induce, cost stickiness. Our findings suggest that any effort to infer sources of sticky costs should be made in light of motivations underlying managers' resource adjustments. Overall, our results provide useful insights for the management and financial accounting literature, and encourage further research to enhance our understanding of the role of motivations underlying managers' decisions in shaping firms' cost structures.

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TABLE 1
Sample Selection*

Sample	Observations deleted	Observations remaining	Different firms
Initial sample: Firm-year observations with valid data on Compustat, 1979-2006		135,594	16,149
Excluding observations with share price below 1$	14,078	121,516	15,158
Excluding observations with missing data on two preceding years (t-1, t-2)	22,565	98,951	11,844
Excluding observations that exhibit extreme values for the regression variables (i.e., in the top and bottom 0.5% of the distribution)	1,404	**97,547**	**11,758**

*Note:

The initial sample includes all firms with complete financial data available on Compustat on sales revenue (Compustat #12), operating income (Compustat #178), net earnings (Compustat #172), total assets (Compustat #6), book value (Compustat #60) and market value (Compustat #25*Compustat#199). We exclude financial institutions (one-digit SIC = 6) and public utilities (two-digit SIC = 49).

TABLE 2
Descriptive Statistics*

Variable	N	Mean	Std. Deviation	25th Pctl	Median	75th Pctl
REV	97,547	1,809.36	8,386.62	39.74	159.56	717.95
OC	97,547	1,635.93	7,660.57	39.44	147.44	653.85
MV	97,547	2,041.80	12,678.29	28.95	121.08	632.11
REVDEC	97,547	0.2744	0.4462	0	0	1
LOSS	97,547	0.0330	0.1786	0	0	0
EDEC	97,547	0.0965	0.2952	0	0	0
MBE	30,442	0.2110	0.4080	0	0	0

*Notes:

1. Definitions of variables:

REV_{it} – annual sales revenue (Compustat #12) of firm i in year t,

OC_{it} – operating costs of firm i in year t – annual sales revenue minus income from operations (Compustat #12 minus Compustat #178),

MV_{it} – market capitalization of shareholders equity at year t end (Compustat #199 X Compustat #25),

$REVDEC_{it}$ – a dummy variable that equals 1 if $REV_{it}<REV_{i,t-1}$ and 0 otherwise,

$LOSS_{it}$ – a dummy variable that equals 1 if annual earnings deflated by market capitalization of shareholders equity at prior year end (Compustat $\#172_t/MV_{t-1}$) is in the interval [0, 0.01], and 0 otherwise**,**

$EDEC_{it}$ – a dummy variable that equals 1 if the change in annual earnings deflated by market capitalization of shareholders equity at prior year end is in the interval [0, 0.01], and 0 otherwise.

MBE_{it} – a dummy variable that equals 1 if the difference between actual earnings per share and consensus analyst forecast is in the interval [0, 0.01], and 0 otherwise

2. See table 1 for sample selection

TABLE 3
The Impact of Incentives to Meet Earnings Targets on the Degree of Cost Stickiness*

Panel A – Avoid Losses

	β_0	β_1	β_2
Avoid losses	0.0391**	0.7878***	0.0252
LOSS=1			
N = 3,216	(2.26)	(34.96)	(0.54)
	0.0356***	0.6815***	-0.0929***
LOSS = 0			
N = 94,331	(11.27)	(77.80)	(-6.55)

Panel B – Avoid Earnings Decreases

	β_0	β_1	β_2
Avoid earnings decreases	0.0460***	0.6504***	0.0525
EDEC =1			
N = 9,409	(6.78)	(16.41)	(0.79)
	0.0345***	0.6871***	-0.0979***
EDEC = 0			
N = 88,138	(9.90)	(80.43)	(-6.81)

*Notes:

1. The table presents regression results for sub-samples of observations with and without incentives to meet earnings targets. We split the sample into observations with and without incentives to avoid losses (panel A) and with and without incentives to avoid earnings decreases (panel B). Then we estimate model (1) separately in each of the sub-samples.
2. The table presents values of coefficients β_2 and the associated t-statistics (in parentheses) for each sub-sample.

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \beta_2 \, REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it} \qquad (1)$$

3. See table 2 for definitions of variables.

4. *, **, *** – denote significance at the 0.10, 0.05 and 0.01 levels, respectively.

TABLE 4
Comprehensive Regression Analyses*

Coefficient	Variable	ABJ	Avoid Losses	Avoid Earnings Decreases	Alternate Earnings Targets	Small Firms	Large Firms
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercepts							
β_0		0.0153*** (7.10)	0.0149*** (6.93)	0.0154*** (7.08)	0.0149*** (6.82)	0.0248*** (6.69)	0.0050** (2.22)
γ_0	Avoid loss		0.0108*** (3.69)				
γ_0	Avoid earnings decrease			-0.0009 (-0.74)			
γ_0	Avoid loss or earnings decrease				0.0021* (1.66)	0.0028 (1.16)	0.0016 (1.16)
Direct effect							
β_1		0.8326*** (37.98)	0.8344*** (38.08)	0.8339*** (38.10)	0.8357*** (38.19)	0.8327*** (26.28)	0.9302*** (34.37)
	Avoid loss		-0.0144 (-0.62)				
γ_1	Avoid earnings decrease			0.0601*** (4.25)			
	Avoid loss or earnings decrease				0.0408*** (3.13)	0.0104 (0.48)	0.0577*** (4.30)
Sticky measures							
β_2	ABJ stickiness measure	-0.2295*** (-16.22)	-0.2332*** (-16.07)	-0.2327*** (-15.59)	-0.2383*** (-15.57)	-0.1926*** (-9.33)	-0.2758*** (-11.79)

TABLE 4 - Continued

	Avoid loss		0.1218** (2.44)				
γ_2	Avoid earnings decrease			0.1748*** (4.35)			
	Avoid loss or earnings decrease				0.1328*** (3.90)	0.1660*** (3.18)	0.1269*** (2.81)
Control variables							
δ_1	Successive Decrease	0.1503** (8.63)	0.1509** (8.65)	0.1505*** (8.73)	0.1521*** (8.81)	0.1638*** (7.58)	0.1283*** (4.14)
δ_2	Asset Intensity	-0.1357*** (-26.81)	-0.1356*** (-26.77)	-0.1373*** (-27.58)	-0.1366*** (-27.42)	-0.1495 (-21.45)	-0.1254*** (-16.90)
δ_3	Employee Intensity	-0.0126*** (-2.69)	-0.0123*** (-2.63)	-0.0113** (-2.42)	-0.0110** (-2.36)	0.0004 (0.06)	-0.00033 (-0.56)
Adj-R^2		0.6223	0.6224	0.6232	0.6231	0.5702	0.7021
N		82,697	82,697	82,697	82,697	41,348	41,349

*Notes:

1. The table presents coefficients and the associated t-statistics (in parentheses) for the following regression models:

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \gamma_0\, TARGET_{it} + \left\{\beta_1 + \gamma_1\, TARGET_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \left\{\beta_2 + \gamma_2\, TARGET\right\} REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] \quad \textbf{(2)}$$

$$+ \left\{\delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it},$$

2. $TARGET_{it}$ = {$LOSS_{it}$, $EDEC_{it}$, $LOSS_{it} \cup EDEC_{it}$}, such that LOSSit∪EDECit is a dummy variable, termed 'alternate targets', that equals one if $LOSS_{it}$=1 or $EDEC_{it}$=1, and zero otherwise. Control variables are as follows: SUC_DEC_{it} is a dummy variable that equals 1 if revenue in year t-1 is less than in year t-2, and 0 otherwise. $ASSINT_{it}$ is the log of the ratio of total assets to sales revenues, and $EMPINT_{it}$ is the log of the ratio of the number of employees to sales revenue.
   See table 2 for definitions of other variables.
3. The number of observations for all six regressions is determined by data availability for all variables.
4. *, **, *** – denote significance of difference from zero at the 0.10, 0.05 and 0.01 levels, respectively.

TABLE 5
Incentives to Meet Financial Analysts Earnings Forecasts*

Panel A – The degree of cost stickiness in categories with and without targets

	β_0	β_1	β_2
Meet or beat analyst earnings forecasts	0.0231**	0.7882***	-0.0962
MBE =1	(2.50)	(26.29)	(-1.24)
N = 6,423			
	0.0386***	0.6711***	-0.2007***
MBE = 0			
N = 24,019	(10.09)	(40.69)	(-6.13)

Panel B – Regression analysis

Coefficient	**Variable**	**Model**
Intercepts		
β_0		0.0170***
		(6.86)
η_0		-0.0049**
		(-2.53)
Direct effect		
β_1		0.9471***
		(30.44)
γ_1	MBE	-0.0021
		(-0.14)
Sticky measures		
β_2	ABJ Stickiness measure	-0.3076***
		(-10.27)
γ_2	MBE	0.0875*
		(1.80)
Control variables		
δ_1	Successive Decrease	0.1520***
		(4.16)
δ_2	Asset Intensity	-0.1312***
		(-15.80)
δ_3	Employee Intensity	0.0083
		(1.31)
Adj-R^2		0.6098
N		25,994

* Notes:

1. The table presents coefficients and the associated t-statistics (in parentheses) for the following regression models:

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \gamma_0\, TARGET_{it} + \left\{\beta_1 + \gamma_1\, TARGET_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \left\{\beta_2 + \gamma_2\, TARGET\right\} REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] \quad \textbf{(2)}$$
$$+ \left\{\delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it},$$

2. $TARGET_{it}$ is a dummy variable that equals one if the analyst forecast error (actual minus forecast earnings per share) is between zero and one cent, and zero otherwise. Control variables are as follows: SUC_DEC_{it} is a dummy variable that equals 1 if revenue in year t-1 is less than in year t-2, and 0 otherwise. $ASSINT_{it}$ is the log of the ratio of total assets to sales revenues, and $EMPINT_{it}$ is the log of the ratio of the number of employees to sales revenue.

   See table 2 for definitions of other variables.

3. The number of observations in each panel is determined by data availability for all variables.

4. *, **, *** – denote significance of difference from zero at the 0.10, 0.05 and 0.01 levels, respectively.

TABLE 6
Earnings Targets in Consecutive Periods*

Coefficient	Variable	Model
Intercepts		
β_0		0.0129*** (6.30)
γ_0	TARGET = Avoid losses or earnings decreases	-0.0010 (-0.82)
ψ_0	Lagged TARGET	0.0080 (5.76)
Direct effect		
β_1		0.8695*** (40.36)
γ_1	TARGET = Avoid losses or earnings decreases	0.0274*** (5.72)
ψ_1	Lagged TARGET	0.0079 (0.65)
Sticky measures		
β_2	ABJ stickiness measure	-0.2059*** (-13.78)
γ_2	TARGET = Avoid losses or earnings decreases	0.0660** (2.11)
ψ_2	Lagged TARGET	-0.0562* (-1.79)
Control variables		
δ_1	Successive Decrease	0.1452*** (9.10)
δ_2	Asset Intensity	-0.1408*** (-24.67)
δ_3	Employee Intensity	-0.0017 (-0.36)
Adj-R^2		0.6704
N		71,849

* Notes:

1. The table presents coefficients and the associated t-statistics (in parentheses) for the following regression models:

$$\log\left[\frac{OC_{it}}{OC_{i,t-1}}\right] = \beta_0 + \gamma_0\, TARGET_{it} + \psi_0 TARGET_{i,t-1} + \left\{\beta_1 + \gamma_1\, TARGET_{it} + \psi_1 TARGET_{i,t-1}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right]$$
$$+ \left\{\beta_2 + \gamma_2\, TARGET_{it} + \psi_2 TARGET_{i,t-1}\right\} REVDEC_{it} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \left\{\delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} \log\left[\frac{REV_{it}}{REV_{i,t-1}}\right] + \varepsilon_{it}, \quad \textbf{(3)}$$

2. $TARGET_{it}$ is a dummy variable, termed 'alternate targets', that equals one if $LOSS_{it}$=1 or $EDEC_{it}$=1, and zero otherwise. Control variables are as follows: SUC_DEC_{it} is a dummy variable that equals 1 if revenue in year t-1 is less than in year t-2, and 0 otherwise. $ASSINT_{it}$ is the log of the ratio of total assets to sales revenues, and $EMPINT_{it}$ is the log of the ratio of the number of employees to sales revenue.

   See table 2 for definitions of other variables.

3. *, **, *** – denote significance of difference from zero at the 0.10, 0.05 and 0.01 levels, respectively.

TABLE 7
Earnings Targets and Managerial Optimism*

	Variable	BCM	Earnings Targets
	(1)	(2)	(3)
β_1	$\Delta REV_{i,t}$*INC_{it} $INC_{i,t-1}$	0.7670*** (93.98)	0.7649*** (92.77)
β_2	$\Delta REV_{i,t}$*INC_{it} $DEC_{i,t-1}$	0.4908*** (34.75)	0.4934*** (34.50)
β_3	$\Delta REV_{i,t}$*DEC_{it} $INC_{i,t-1}$	0.5684*** (39.63)	0.5605*** (37.67)
β_4	$\Delta REV_{i,t}$*DEC_{it} $DEC_{i,t-1}$	0.6231*** (34.50)	0.6141*** (33.02)
ϕ_1	$\Delta REV_{i,t}$*INC_{it} $INC_{i,t-1}$ $TARGET_{it}$		0.0220 (1.10)
ϕ_2	$\Delta REV_{i,t}$*INC_{it} $DEC_{i,t-1}$ $TARGET_{it}$		-0.0415 (-0.70)
ϕ_3	$\Delta REV_{i,t}$*DEC_{it} $INC_{i,t-1}$ $TARGET_{it}$		0.1281*** (3.13)
ϕ_4	$\Delta REV_{i,t}$*DEC_{it} $DEC_{i,t-1}$ $TARGET_{it}$		0.1703*** (3.74)
	Adj R^2	0.6451	0.6458
	N	94,255	94,255

* Notes:

1. The table presents coefficients and the associated t-statistics (in parentheses) for the following regression models:

$$\Delta OC_{it} = \beta_0 + \beta_1 \Delta REV_{it}\, REV\_INC_{it}\, REV\_INC_{i,t-1} + \beta_2 \Delta REV_{it}\, REV\_INC_{it}\, REV\_DEC_{i,t-1}$$
$$+ \beta_3 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_INC_{i,t-1} + \beta_4 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_DEC_{i,t-1} \quad \textbf{(4)}$$
$$+ \phi_1 \Delta REV_{it}\, REV\_INC_{it}\, REV\_INC_{i,t-1} TARGET_{it} + \phi_2 \Delta REV_{it}\, REV\_INC_{it}\, REV\_DEC_{i,t-1} TARGET_{it} +$$
$$\phi_3 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_INC_{i,t-1} TARGET_{it} + \phi_4 \Delta REV_{it}\, REV\_DEC_{it}\, REV\_DEC_{i,t-1} TARGET_{it.} + \eta_{it}$$

2. Following Banker, Ciftci and Mashruwala (2010), **ΔOC** is the log change in operating costs for firm i in year t (between year t and year t-1); **ΔREV** is the log change in sales revenue. **REV_INC$_{it}$ REV_ INC$_{i,t-1}$** is a dummy variable that equals one if sales revenue increases in both the current (between t-1 and t) and previous periods (between t-2 and t-1), and 0 otherwise; **REV_INC$_{it}$ REV_DEC$_{i,t-1}$** is a dummy variable that equals one if sales revenue increases in the current period but decreases in the previous period, and 0 otherwise; **REV_DEC$_{it}$ REV_ INC$_{i,t-1}$** is a dummy variable that equals one if sales revenue decreases in the current period and increases in the previous period, and 0 otherwise; **REV_DEC$_{it}$ REV_ DEC$_{i,t-1}$** is a dummy variable that equals one if sales revenue decreases for two consecutive periods, and 0 otherwise.

   TARGET$_{it}$ is a dummy, termed 'alternate targets', that equals 1 if LOSS$_{it}$=1 or EDEC$_{it}$=1, and 0 otherwise.

3. *, **, *** – denote significance of difference from zero at the 0.10, 0.05 and 0.01 levels, respectively.