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Do Earnings Targets and Managerial Incentives Affect Sticky Costs?

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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. We find that, when managers face incentives to avoid losses or earnings decreases, or to meet financial analysts' earnings forecasts, they expedite downward adjustment of slack resources for sales decreases. 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.

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

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influence firms' cost structures (Kallapur and Eldenburg [2005], Banker, Ciftci, and Mashruwala [2011], Banker, Huang, and Natarajan [2011], Chen, Lu, and Sougiannis [2012]). 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 unutilized resources are retained 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 adjusting resources downward (e.g., costs of firing employees) and 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 incentives to meet 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. Specifically, we hypothesize that: (i) resource adjustments made intentionally to meet earnings targets diminish the degree of cost stickiness, and (ii) for a given decrease in sales, managers cut costs more aggressively in the presence of incentives to meet earnings targets than absent these incentives.

The empirical findings, based on a sample of 97,547 firm-year observations from 1979 to 2006, indicate that, when sales fall, managers cut costs more aggressively in the presence of incentives to avoid losses, to avoid earnings decreases, and to meet financial analysts' earnings forecasts. Resource adjustments made to meet these earnings targets significantly moderate the degree of cost stickiness. Furthermore, 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 framework presented by Banker, Ciftci, and Mashruwala [2011], hereafter BCM, for testing 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, Petersen, and Soderstrom [2004], Balakrishnan and Gruca [2008], BCM) document how managerial choices made to maximize firm value induce cost stickiness. Chen, Lu, and Sougiannis [2012] 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 the 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 hypotheses are 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 incentives to meet earnings targets 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, Huang, and Natarajan [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, Lu, and Sougiannis [2012] document how empire-building incentives affect managers' cost decisions made in response to exogenous demand shocks. They show that empire-building managers increase selling, 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]

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]). In particular, Graham, Harvey, and Rajgopal [2005], Roychowdhury [2006], Cohen, Dey, and Lys [2008], and Keung, Lin, and Shia [2010] report that managers reduce costs to avoid losses and earnings decreases, or to meet analysts' 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. Since future demand is stochastic, managers evaluate the likelihood that a drop in sales is temporary when deciding whether to cut resources. Cutting slack resources when sales fall is likely to result in the incurring of extra costs to adjust resources downward (e.g., costs of firing employees) and to replace those resources if sales are restored in the future (e.g., costs of rehiring new employees). Therefore, 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; that is, 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 argue that, in addition to value-maximizing considerations, managers' choices to maintain unutilized resources may also be caused by personal interests. These choices result in the form of agency costs, which, in turn, contribute to cost stickiness. Focusing on resources adjustments, we assert 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 incentives to meet earnings targets than absent these incentives. For this reason, we hypothesize that cost stickiness is lessened in the presence of incentives to meet earnings targets.

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[1]Dierynck, Landsman, and Renders [2012] use a sample of Belgian private companies and find more asymmetric cost behavior for firms that report small profits.

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 immediate cost savings, which are imperative for meeting earnings targets. In other words, incentives to meet earnings targets, that is, agency considerations, lead managers to cut resources more when sales fall than would be optimal from the perspective of maximizing firm value.

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

The following hypotheses summarize our arguments:

H1: Resource adjustments made intentionally to meet earnings targets diminish cost stickiness.

H2: For a given decrease in sales, managers cut costs more aggressively in the presence of incentives to meet earnings targets than absent these incentives.

In the next section, we extend ABJ to allow for testing the impact of deliberate resource adjustments made to meet earnings targets, in both favorable and unfavorable scenarios, on the degree of cost stickiness.

3. Research Design

Investigating the impact of managerial discretion motivated by incentives to meet earnings targets on the degree of cost stickiness, we expand the ABJ framework by a battery of additional analyses to test the hypotheses. We focus on operating costs (*OC*) 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 *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:

$$\Delta \ln \mathrm{OC}_{it} = \beta_0 + \beta_1 \Delta \ln REV_{it} + \beta_2\ REVDEC_{it}\ \Delta \ln REV_{it} + \varepsilon_{it}. \quad (1)$$

In estimating all models, we employ pooled cross-sectional regressions, include year effects, and cluster observations by firm to provide standard errors that are robust to autocorrelation and heteroscedasticity 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 percentage change in costs for a 1% increase in sales, indicating the variation of operating costs with sales revenue. Similarly, $\beta_1 + \beta_2$ measures the percentage change in operating costs resulting from a 1% decrease in sales. 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 significantly negative coefficient β_2 conditional on a positive coefficient β_1 indicates sticky costs.

3.1 SUBSAMPLE ANALYSES

Focusing on resource adjustments made intentionally to meet earnings targets, we follow Burgstahler and Dichev [1997], Roychowdhury [2006], and Cohen, Dey, and Lys [2008] in identifying the presence of such incentives. These studies argue that firms in the interval just right of zero tend to reduce their costs to meet earnings targets.

Gaining initial insights on the impact of deliberate resource adjustments made to meet earnings targets, 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; that is, have net income scaled by market capitalization that is greater than or equal to zero but less than or equal to 0.01. Following prior studies, observations in this interval are assumed to have incentives to meet earnings targets. 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 subsamples of observations with and without incentives to avoid losses. The estimated coefficients β_2 support the first hypothesis if β_2 is significant and negative absent incentives to meet earnings targets and significantly higher (i.e., less negative or positive) in the presence of these incentives. The estimated coefficients β_1 and β_2 support the second hypothesis if the slope for sales decreases, $\beta 1 + \beta 2$, is significantly higher in the presence of incentives to meet earnings targets than the slope absent these incentives. We repeat these procedures for subsamples of observations with and without incentives to avoid earnings decreases.

3.2 COMPREHENSIVE REGRESSION MODELS

In developing the concept of cost stickiness, ABJ focus on managerial discretion only in the case of sales decreases, and assume mechanistic cost response in the case of sales increases. By contrast, 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 resource adjustments made intentionally to meet earnings targets when sales either fall or rise. Specifically, we extend model (1) by adding interaction terms that enable estimation of 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 ABJ and subsequent 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.

We estimate the following regression model to test the impact of (1) incentives to avoid losses, (2) incentives to avoid earnings decreases, and (3) incentives to avoid losses or to avoid earnings decreases (termed "alternate incentives") on the degree of cost stickiness:

$$\begin{aligned}\Delta \ln OC_{it} = {} & \beta_0 + \gamma_0\ TARGET_{it} + \{\ \beta_1 + \gamma_1\ TARGET_{it}\ \}\ \ \Delta \ln REV_{it} \\ & + \{\ \beta_2 + \gamma_2\ TARGET_{it} + \delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} \\ & + \delta_3 EMPINT_{it}\} \times REVDEC_{it}\ \Delta \ln REV_{it} + \varepsilon_{it}, \qquad (2)\end{aligned}$$

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 capitalization of shareholders' equity at prior year end 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. $ASINT_{it}$ 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.

We extend ABJ for testing whether incentives to meet earnings targets affect the degree of cost stickiness. In model (2), the slope for sales increases in the presence of incentives to meet earnings targets is $\beta_1 + \gamma_1$, and the slope for sales decreases in the presence of incentives to meet earnings targets is $\beta_1 + \gamma_1 + \beta_2 + \gamma_2 + \delta_1 SUC\_DEC + \delta_2 ASINT + \delta_3 EMPINT$. We note that $\beta_1 + \gamma_1$ enters the slope for both increases and decreases. Accordingly, the stickiness measure in the presence of incentives to meet earnings targets is the difference between the two slopes, which equals $\beta_2 + \gamma_2 + \delta_1 SUC\_DEC + \delta_2 ASINT + \delta_3 EMPINT$, whereas the stickiness measure absent incentives to meet earnings targets is $\beta_2 + \delta_1 SUC\_DEC + \delta_2 ASINT + \delta_3 EMPINT$. Therefore, testing the first hypothesis, resource adjustments made intentionally to meet earnings targets diminish cost stickiness if $\gamma_2 > 0$.

Model (2) also provides the means for testing the second hypothesis, that is, when managers face incentives to meet earnings targets (i.e., $TARGET = 1$), they cut costs more aggressively for the same decrease in sales than absent these incentives. A more aggressive cut in costs in the presence of incentives to meet earnings targets means that the slope for sales decreases, $\beta_1 + \gamma_1 + \beta_2 + \gamma_2 + \delta_1 SUC\_DEC + \delta_2 ASINT + \delta_3 EMPINT$, is greater than the slope absent these incentives, $\beta_1 + \beta_2 + \delta_1 SUC\_DEC + \delta_2 ASINT + \delta_3 EMPINT$. That is, the second hypothesis holds if $\gamma_1 + \gamma_2 > 0$.

We perform sensitivity analyses to reconfirm that the findings with respect to both hypotheses 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 estimating regression model (2) separately for each of the two groups. Additionally, to assure that findings are not driven by industry-specific characteristics, we control for potential industry-specific effects using the Fama-French industry classification.[2]

[2]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 hypotheses 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 1 if the analyst forecast error (actual minus forecast earnings per share) is between zero and one cent. As before, the first hypothesis is supported if $\gamma_2 > 0$ and the second hypothesis holds if $\gamma_1 + \gamma_2 > 0$.

3.4 EARNINGS TARGETS IN CONSECUTIVE PERIODS

We also test the impact of prior incentives on current cost stickiness. This test is of interest because prior and current incentives are likely to have opposing effects on current 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. Therefore, lagged incentives are likely to increase current stock stickiness, whereas current incentives are likely to reduce current cost stickiness. We add lagged *TARGET* to the estimation model:

$$\begin{aligned}\Delta \ln OC_{it} = {} & \beta_0 + \gamma_0\ TARGET_{it} + \psi_0 TARGET_{i,t-1} \\ & + \left\{\beta_1 + \gamma_1\ TARGET_{it} + \psi_1 TARGET_{i,t-1}\right\}\ \Delta \ln REV_{it} \\ & + \left\{\beta_2 + \gamma_2\ TARGET_{it} + \psi_2 TARGET_{i,t-1} + \delta_1 SUC\_DEC_{it}\right. \\ & \left. + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} REVDEC_{it}\, \Delta \ln REV_{it} + \varepsilon_{it}.\end{aligned} \tag{3}$$

If managers' current incentives diminish the degree of current cost stickiness, regardless of whether or not managers faced the same incentives in the prior period, then $\gamma_2 > 0$. If managers' prior incentives increase the degree of current cost stickiness, regardless of whether or not managers face the same incentives in the current period, then $\psi_2 < 0$. In the case of incentives in two consecutive periods, the degree of current cost stickiness diminishes if $\gamma_2 + \psi_2 > 0$. Findings from estimating model (3) can potentially extend our understanding of the rationale underlying the relationship between incentives to meet earnings targets and the degree of cost stickiness.

3.5 THE BCM FRAMEWORK

The recently developed framework by Banker, Ciftci, and Mashruwala [2011], hereafter BCM, 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 in 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.

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

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).

Section 6 elaborates upon this new framework and utilizes it for testing our hypotheses.

4. Sample Selection and Descriptive Statistics

The sample includes all public firms covered by Compustat during 1979–2006. We use annual data for our tests and our sample choices follow Burgstahler and Dichev [1997], ABJ, Roychowdhury [2006], and Banker, Byzalov, and Plehn-Dujowich [2011]. We exclude financial institutions and public utilities (four-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% 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.

Comparing the descriptive statistics of our sample reported in table 2 with the ABJ 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). However, our sample shows similar frequency of sales declines (27.4% vs. 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

TABLE 2
Descriptive Statistics

Variable	*N*	Mean	Std. Dev.	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

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 × 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 analysts' forecast is in the interval [0, 0.01], and 0 otherwise.
2. See table 1 for sample selection.

suspect firm-years with incentives to avoid missing analysts' earnings consensus forecasts (in line with Bartov and Cohen [2009]).

5. *Empirical Results*

5.1 SUBSAMPLE ANALYSES

The first hypothesis predicts that cost stickiness should be lower when managers are facing incentives to meet earnings targets. Testing the first hypothesis in the ABJ setting, results from estimating model (1) in subsamples of observations with and without incentives to meet earnings targets are reported in table 3.[3] Given no incentives to avoid losses, the estimate of β_2 is −0.0929, significant at the 0.01 level (see panel A). That is, costs are sticky when managers are not motivated to avoid losses, consistent with ABJ's findings. However, the estimate of β_2 in the presence of incentives to avoid losses is 0.0252, insignificantly different from zero (see panel A). In contrast with ABJ's findings, costs exhibit a symmetric, nonsticky pattern, when managers are motivated to avoid losses. The difference between the values of β_2 in the two subsamples is positive and significant at the 0.02 level.[4] That is, cost stickiness is washed away in the presence of incentives to avoid losses, consistent with the first hypothesis.

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

[4]We test the significance level using the full sample and a dummy variable to distinguish between the two subsamples.

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	$\beta_1 + \beta_2$
Avoid losses				
$LOSS = 1$	0.0391**	0.7878***	0.0252	0.8130***
$N = 3{,}216$	(2.26)	(34.96)	(0.54)	(15.94)
$LOSS = 0$	0.0356***	0.6815***	−0.0929***	0.5886***
$N = 94{,}331$	(11.27)	(77.80)	(−6.55)	(36.50)
The difference between $LOSS = 1$	0.0035	0.1063***	0.1181**	0.2244***
and $LOSS = 0$ subsamples	(0.21)	(4.43)	(2.28)	(5.02)
Panel B: Avoid Earnings Decreases				
Avoid earnings decreases				
$EDEC = 1$	0.0460***	0.6504***	0.0525	0.7029***
$N = 9{,}409$	(6.78)	(16.41)	(0.79)	(9.69)
$EDEC = 0$	0.0345***	0.6871***	−0.0979***	0.5892***
$N = 88{,}138$	(9.90)	(80.43)	(−6.81)	(36.54)
The difference between $EDEC = 1$	0.0115	−0.0367	0.1504**	0.1137**
and $EDEC = 0$ subsamples	(1.50)	(−1.00)	(2.22)	(1.99)

1. The table presents regression results for subsamples 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 subsamples.

2. The table presents values of coefficients β_2 and the associated t-statistics (in parentheses) for each subsample.

$$\Delta \ln OC_{it} = \beta_0 + \beta_1 \Delta \ln REV_{it} + \beta_2 REVDEC_{it} \Delta \ln REV_{it} + \varepsilon_{it}. \quad (1)$$

3. See table 2 for definitions of variables.

4. *, **, ***Significance at the 0.10, 0.05, and 0.01 levels, respectively.

The second hypothesis predicts that, when managers face incentives to meet earnings targets they cut costs more aggressively for the same decrease in sales than absent these incentives. Given no incentives to avoid losses, the estimate of $\beta_1 + \beta_2$ is $0.6815 - 0.0929 = 0.5886$. The estimate of $\beta_1 + \beta_2$ in the presence of incentives to avoid losses is $0.7878 + 0.0252 = 0.8130$. The slope for sales decreases, $\beta 1 + \beta 2$, is higher in the presence of incentives to meet earnings targets than the slope absent these incentives. The difference between the values of $\beta_1 + \beta_2$ in the two subsamples is significant at the 0.01 level, consistent with the second hypothesis.

Similarly, given no incentives to avoid earnings decreases, the estimate of β_2 is -0.0979, significant at the 0.01 level (see panel B). Again, this result is consistent with ABJ's findings. However, the estimate of β_2 in the presence of incentives to avoid earnings decreases is 0.0525 (insignificantly different from zero). The difference between the values of β_2 in the two subsamples is positive and significant at the 0.03 level. Once more, cost stickiness is washed away in the presence of incentives to avoid earnings decreases, consistent with the first hypothesis. As for the second hypothesis, given no incentives to avoid earnings decreases, the estimate of

$\beta_1 + \beta_2$ is $0.6871 - 0.0979 = 0.5892$. The estimate of $\beta_1 + \beta_2$ in the presence of incentives to avoid earnings decreases is $0.6504 + 0.0525 = 0.7029$. The value of $\beta_1 + \beta_2$ differs between the two subsamples. The difference is positive and significant at the 0.05 level, consistent with the second hypothesis.

The findings indicate that the introduction of incentives to meet earnings targets washes away cost stickiness, resulting in symmetric costs. Overall, the findings are consistent with less sticky costs caused by resource adjustments made intentionally to meet earnings targets, and suggest that managers cut costs more aggressively in the presence of incentives to meet earnings targets than absent these incentives.

5.2 COMPREHENSIVE REGRESSION ANALYSES

We start by estimating the ABJ model as a benchmark (third column of table 4). 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) on the degree of cost stickiness. Considering incentives to avoid losses (fourth column of table 4), the estimate of γ_2 is 0.1176, positive and significant at the 0.03 level, supporting the first hypothesis. That is, resource adjustments made intentionally to avoid losses diminish the degree of cost stickiness. Testing the second hypothesis, $\gamma_1 + \gamma_2 = -0.0103 + 0.1176 = 0.1073$, positive and significant at the 0.05 level. The findings suggest that incentives to avoid losses result in more aggressive cost cuts when sales decrease than absent these incentives. This evidence supports the second hypothesis.

Considering incentives to avoid earnings decreases (fifth column of table 4), the estimate of γ_2 is 0.1633, positive and significant at the 0.01 level, in support of the first hypothesis. Testing the second hypothesis, $\gamma_1 + \gamma_2 = 0.0759 + 0.1633 = 0.2392$, positive and significant at the 0.01 level. The result is consistent with the second hypothesis.

We also estimate model (2) with alternate incentives to either avoid losses or avoid earnings decreases (sixth column of table 4). *TARGET* equals 1 if $\{LOSS = 1$ or $EDEC = 1\}$, and 0 otherwise. The estimate of γ_2 is 0.1157, significant at the 0.01 level. Again, $\gamma_1 + \gamma_2 = 0.0557 + 0.1157 = 0.1714$, positive and significant at the 0.01 level. The findings support both hypotheses.

Overall, the findings from estimating the comprehensive regression models suggest that managers' resource adjustments made intentionally to meet earnings targets diminish cost stickiness, in line with the first hypothesis. The evidence is also consistent with the second hypothesis, suggesting that managers cut costs more aggressively in the presence of incentives to meet earnings targets than absent these incentives. The results provide evidence that the degree of cost stickiness is influenced by managers' deliberate resource adjustments motivated by agency considerations.

TABLE 4

Comprehensive Regression Analyses

Coefficient (1)	Variable (2)	ABJ (3)	Avoid Losses (4)	Avoid Earnings Decreases (5)	Alternate Earnings Targets (6)	Small Firms (7)	Large Firms (8)
Intercepts							
β_0		0.0214***	0.0211***	0.0219***	0.0213***	0.0319***	0.0092***
		(10.04)	(9.87)	(10.04)	(9.80)	(8.66)	(4.07)
γ_0	Avoid loss		0.0096***				
			(3.16)				
γ_0	Avoid earnings decrease			−0.0047***			
				(−2.71)			
γ_0	Avoid loss or earnings decrease				−0.0012	−0.0018	−0.0003
					(−0.81)	(−0.68)	(−0.20)
Direct effect							
β_1		0.8257***	0.8260***	0.8195***	0.8201***	0.7551***	0.8936***
		(107.77)	(105.87)	(102.18)	(100.65)	(61.53)	(96.02)
γ_1	Avoid loss		−0.0103				
			(−0.44)				
	Avoid earnings decrease			0.0759***			
				(3.76)			
	Avoid loss or earnings decrease				0.0557***	0.0364	0.0612***
					(3.33)	(1.31)	(3.49)
Sticky measures							
β_2	ABJ stickiness measure	−0.2283***	−0.2316***	−0.2243***	−0.2290***	−0.2033***	−0.1727***
		(−10.78)	(−10.83)	(−10.57)	(−10.69)	(−7.77)	(−3.95)

(*Continued*)

TABLE 4—*Continued*

Coefficient (1)	Variable (2)	ABJ (3)	Avoid Losses (4)	Avoid Earnings Decreases (5)	Alternate Earnings Targets (6)	Small Firms (7)	Large Firms (8)
γ_2	Avoid loss		0.1176**				
			(2.19)				
	Avoid earnings decrease			0.1633***			
				(2.89)			
	Avoid loss or earnings decrease				0.1157***	0.1294**	0.1024**
					(3.03)	(2.37)	(1.95)
Control variables							
δ_1	Successive decrease	0.1570***	0.1577***	0.1572***	0.1588***	0.1767***	0.1327***
		(7.93)	(7.97)	(7.97)	(8.07)	(7.81)	(3.12)
δ_2	Asset intensity	−0.3241***	−0.3236***	−0.3284***	−0.3262***	−0.3136***	−0.3731***
		(−27.41)	(−27.39)	(−27.92)	(27.77)	(−21.90)	(−17.96)
δ_3	Employee intensity	−0.0696***	−0.0692***	−0.0669***	−0.0659***	−0.0764***	−0.0326
		(−6.28)	(−6.28)	(−6.03)	(−6.01)	(−5.91)	(−1.40)
Adj.-R^2		0.6229	0.6231	0.6240	0.6239	0.5660	0.7113
N		82,697	82,697	82,697	82,697	41,348	41,349

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

$$\Delta \ln OC_{it} = \beta_0 + \gamma_0 TARGET_{it} + \{\beta_1 + \gamma_1 TARGET_{it}\}\Delta \ln REV_{it} + \left\{\beta_2 + \gamma_2 TARGET_{it} + \delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\right\} REVDEC_{it}\Delta \ln REV_{it} + \varepsilon_{it}. \quad (2)$$

2. $\text{TARGET}_{it} = \{\text{LOSS}_{it}, EDEC_{it}, \text{LOSS}_{it} \cup EDEC_{it}\}$, such that $\text{LOSS}_{it} \cup EDEC_{it}$ is a dummy variable, termed " alternate targets," that equals 1 if $\text{LOSS}_{it} = 1$ 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. $ASINT_{it}$ 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. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

We note that the lower degree of cost stickiness is induced primarily by downward adjustments of resources made to meet earnings targets when sales fall. For incentives to avoid losses, the estimate of γ_1 is -0.0103, negative and insignificant. That is, managers do not significantly restrain their resource adjustments when sales rise in response to incentives to avoid losses. For incentives to avoid earnings decreases, the estimate of γ_1 is 0.0759, positive and significant at the 0.01 level. This result suggests that incentives to avoid earnings decreases result in a cost increase at a faster rate (higher slope) for the same sales increase. The findings suggest that incentives to meet earnings targets encourage managers to expedite cost cuts when sales fall, but do not lead them to restrain cost increases when sales rise.

One possible explanation for the positive γ_1 is that managers are able to avoid losses or earnings decreases by increasing advertising expenses, which, in turn, increase sales. To test this explanation, we re-estimate model (2) and replace *OC* as the dependent variable with operating costs minus advertising expenses. When advertising expenses are missing in the database we assume that they equal zero. When advertising expenses are excluded, the results (not reported for brevity) indicate that managers do not expedite cost increases when facing earnings targets (γ_1 is not significantly different from zero). This implies that advertising expenses contribute to cost increases in the presence of incentives to meet earnings targets and sales increases.

Results with respect to the control variables are in line with ABJ. The estimated coefficients on successive decreases in sales, *SUC_DEC*, are positive and significant. The estimated coefficients for asset intensity, *ASINT*, and employee intensity, *EMPINT*, are negative and significant. These results are 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 repeated the estimation of regression model (2) separately for small (below median) and large (above median) observations (the seventh and eighth columns of table 4). The estimates are $\gamma_2 = 0.1294$ (significant at the 0.02 level) for the small-firm subsample, and $\gamma_2 = 0.1024$ (significant at the 0.05 level) for the large-firm subsample. Also, $\gamma_1 + \gamma_2 = 0.0364 + 0.1294 = 0.1658$ (significant at the 0.01 level) for the small-firm subsample and $\gamma_1 + \gamma_2 = 0.0612 + 0.1024 = 0.1636$ (significant at the 0.01 level) for the large-firm subsample. The findings support both hypotheses for both small and large firms. We conclude that firm size does not affect the predicted phenomenon.

Second, we repeat 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 the Fama-French industry classification. The results are similar.

Fourth, we check the robustness of the findings to employing an alternative earnings deflator. 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 repeat the above analyses. The findings (not tabulated for brevity) are similar. Finally, we also repeated 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 encourage managers to moderate the degree of cost stickiness, and to expedite resource cutting in response to sales fall. 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.

5.3. INCENTIVE TO MEET FINANCIAL ANALYSTS' EARNINGS FORECASTS

Results from estimating the ABJ model (1) in subsamples 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 estimate of β_2 is -0.2007, significant at the 0.01 level. That is, costs are sticky when managers are not motivated to meet financial analysts' earnings forecasts. However, the estimate of β_2 in the presence of incentives to avoid losses is -0.0962, insignificantly different from zero. That is, costs express a symmetric pattern, not a sticky one, when managers are motivated to meet financial analysts' earnings forecasts. The value of β_2 differs between the two subsamples. The difference is positive and significant at the 0.10 level. That is, cost stickiness is washed away in the presence of incentives to meet financial analysts' consensus earnings forecasts, consistent with the first hypothesis.

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 estimate of γ_2 is 0.0894, positive and significant at the 0.08 level. That is, incentives to meet financial analysts' consensus earnings forecasts diminish the degree of cost stickiness, supporting the first hypothesis. Testing the second hypothesis, $\gamma_1 + \gamma_2 = 0.0348 + 0.0894 = 0.1242$, significant at the 0.05 level. That is, incentives to meet financial analysts' consensus earnings forecasts lead managers to cut costs

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	$\beta_1 + \beta_2$
Meet or beat analysts' earnings forecasts				
$MBE = 1$	0.0231**	0.7882***	−0.0962	0.6920***
$N = 6{,}423$	(2.50)	(26.29)	(−1.24)	(9.51)
$MBE = 0$	0.0386***	0.6711***	−0.2007***	0.4704
$N = 24{,}019$	(10.09)	(40.69)	(−6.13)	(13.83)***
The difference between $MBE = 1$ and $MBE = 0$ subsamples	−0.0155 (−1.63)	0.1171*** (3.57)	0.1045* (1.70)	0.2216*** (2.59)

Panel B: Regression Analysis

Coefficient	Variable	Model
Intercepts		
β_0		0.0232***
		(8.93)
η_0		−0.0067
		(−3.07)
Direct effect		
β_1		0.8272***
		(52.65)
γ_1	*MBE*	0.0348*
		(1.86)
Sticky measures		
β_2	ABJ Stickiness measure	−0.2535***
		(−6.14)
γ_2	*MBE*	0.0894*
		(1.75)
Control variables		
δ_1	Successive decrease	0.1033**
		(2.39)
δ_2	Asset intensity	−0.3399***
		(−17.16)
δ_3	Employee intensity	−0.0908***
		(−3.89)
Adj.-R^2		0.6119
N		25,994

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

$$\Delta \ln OC_{it} = \beta_0 + \gamma_0 TARGET_{it} + \{\beta_1 + \gamma_1 TARGET_{it}\}\Delta \ln REV_{it} + \{\beta_2 + \gamma_2 TARGET_{it} + \delta_1 SUC\_DEC_{it} + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\} REVDEC_{it}\Delta \ln REV_{it} + \varepsilon_{it}, \quad (2)$$

2. $TARGET_{it}$ is a dummy variable that equals 1 if the analyst forecast error (actual minus forecast earnings per share) is between zero and one cent, 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. $ASINT_{it}$ 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. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

more aggressively in the presence of incentives to meet earnings targets than absent these incentives, which is consistent with the second hypothesis.

5.4 EARNINGS TARGETS IN CONSECUTIVE PERIODS

Results from estimating model (3) reported in table 6 shed light on the effect of incentives to meet earnings targets in the prior period on the degree of cost stickiness in the current period. The estimate of γ_2 is 0.0595, significant at the 0.06 level. That is, managers' current incentives diminish the degree of current cost stickiness, regardless of whether or not managers faced the same incentives in the prior period. The estimate of ψ_2 is -0.0515, significant at the 0.10 level. That is, managers' incentives in the prior period increase the degree of cost stickiness in the current period, regardless of whether or not managers face the same incentives in the current period.

Furthermore, in the case of incentives to meet earnings targets on two consecutive periods, we find that $\gamma_2 + \psi_2 = 0.0595 - 0.0515 = 0.0080$, insignificantly different from zero. The result suggests that, if managers face incentives to meet an earnings target in two consecutive periods, then the degree of cost stickiness is not diminished, even though current incentives reduce stickiness.

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 managerial intervention 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 when sales fall than they increase when sales rise by an equivalent amount, 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, motivating them to cut costs to a greater extent. By contrast, optimistic demand expectations stand at odds with cutting resources, as these resources are likely to be required for supplying future demand. Therefore, when managers face incentives to meet earnings targets, they are more likely to accelerate cost cuts in the pessimistic case than in the optimistic case. Consequently,

TABLE 6
Earnings Targets in Consecutive Periods

Coefficient	Variable	Model
Intercepts		
β_0		0.0150***
		(7.41)
γ_0	*TARGET* = Avoid losses or earnings decreases	−0.0027**
		(−2.10)
ψ_0	Lagged *TARGET*	0.0068***
		(4.82)
Direct effect		
β_1		0.8401***
		(107.32)
γ_1	*TARGET* = Avoid losses or earnings decreases	0.0697***
		(4.28)
ψ_1	Lagged *TARGET*	0.0158
		(1.21)
Sticky measures		
β_2	ABJ stickiness measure	−0.2281***
		(−7.62)
γ_2	*TARGET* = Avoid losses or earnings decreases	0.0595*
		(1.86)
ψ_2	Lagged *TARGET*	−0.0515*
		(−1.63)
Control variables		
δ_1	Successive decrease	0.1664***
		(10.55)
δ_2	Asset intensity	−0.3387***
		(−25.23)
δ_3	Employee intensity	−0.0007
		(−0.10)
Adj.-R^2		0.6726
N		71,849

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

$$\begin{aligned}\Delta \ln OC_{it} = {} & \beta_0 + \gamma_0 TARGET_{it} + \psi_0 TARGET_{i,t-1} + \{\beta_1 + \gamma_1 TARGET_{it} + \psi_1 TARGET_{i,t-1}\} \\ & \times \Delta \ln REV_{it} + \{\beta_2 + \gamma_2 TARGET_{it} + \psi_2 TARGET_{i,t-1} + \delta_1 SUC\_DEC_{it} \\ & + \delta_2 ASINT_{it} + \delta_3 EMPINT_{it}\} REVDEC_{it} \Delta \ln REV_{it} + \varepsilon_{it}, \end{aligned} \quad (3)$$

2. $TARGET_{it}$ 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. $ASINT_{it}$ 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.*, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

the impact of managers' incentives on the degree of cost stickiness is likely to be stronger in the pessimistic case than in the optimistic case. 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.

BCM used directions of sales changes in consecutive periods as a proxy for optimism or pessimism in demand expectations. They find that the

direction of sales change in the prior period influences the degree of cost stickiness. Specifically, they find significant stickiness after a prior sales increase, and significant anti-stickiness after a prior sales decrease. The incentives variables *LOSS* and *EDEC* may be systematically correlated with the direction of sales change in the prior period. Therefore, we build on the model suggested by BCM and control for the direction of sales change in the prior period to avoid omitted variable bias in the estimates of the impact of *LOSS* and *EDEC* on cost stickiness. Also, as discussed above, the impact of *LOSS* and *EDEC* is likely to be stronger in the pessimistic case than in the optimistic case, and, therefore, we allow the coefficients on *LOSS* and *EDEC* to vary depending on the direction of sales change in the prior period.

Examining a two-period setting, two consecutive periods of sales increase (decrease) signal managerial optimism (pessimism) about future demand. 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:

$$\begin{aligned}\Delta \ln OC_{it} = {} & \beta_0 + \varphi_0\ TARGET_{it} + \ \beta_1 \Delta \ln REV_{it} REVINC_{it} \\ & \times REVINC_{i,t-1} + \ \beta_2 \Delta \ln REV_{it} REVINC_{it} REVDEC_{i,t-1} \\ & + \beta_3 \Delta \ln REV_{it} REVDEC_{it} REVINC_{i,t-1} + \ \beta_4 \Delta \ln REV_{it} \\ & \times REVDEC_{it} REVDEC_{i,t-1} + \varphi_1 TARGET_{it} \Delta \ln REV_{it} \\ & \times REVINC_{it} REVINC_{i,t-1} + \varphi_2 TARGET_{it} \Delta \ln REV_{it} \\ & \times REVINC_{it} REVDEC_{i,t-1} + \ \varphi_3 TARGET_{it} \Delta \ln REV_{it} \\ & \times REVDEC_{it} REVINC_{i,t-1} + \ \varphi_4 TARGET_{it} \Delta \ln REV_{it} \\ & \times REVDEC_{it} REVDEC_{i,t-1} + \eta_{it}, \end{aligned} \tag{4}$$

where $\Delta \ln OC_{it}$ is the log change in operating costs for firm i in year t (between year t and year $t-1$) and $\Delta \ln REV_{it}$ is the log change in sales revenue. We include four dummy variables to distinguish the situations in terms of the direction of change in sales in current and prior periods for firm i. The $REVINC_{it}$ dummy takes the value of 1 if sales revenue increases in the current period (between $t-1$ and t), and 0 otherwise. The $REVDEC_{it}$ dummy takes the value of 1 when sales revenue decreases in the current period, and 0 otherwise. $REVINC_{i,t-1}$ and $REVDEC_{i,t-1}$ dummies are defined similarly for period $t-1$. $TARGET_{it}$ 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 year effects, and cluster observations by firm to provide standard errors that are robust to autocorrelation and heteroscedasticity, as suggested by Petersen [2009].

TABLE 7
Earnings Targets and Managerial Optimism

	Variable (1)	BCM (2)	Earnings Targets (3)
β_0	Intercept	0.0316***	0.0311***
		(10.12)	(9.84)
ϕ_0	$TARGET_{it}$		0.0038
			(1.37)
β_1	$\Delta\ln REV_{it}$ $REVINC_{it}$ $REVINC_{i,t-1}$	0.7670***	0.7660***
		(93.98)	(91.15)
β_2	$\Delta\ln REV_{it}$ $REVINC_{it}$ $REVDEC_{i,t-1}$	0.4908***	0.4942***
		(34.75)	(34.41)
β_3	$\Delta\ln REV_{it}$ $REVDEC_{it}$ $REVINC_{i,t-1}$	0.5684***	0.5595***
		(39.63)	(37.31)
β_4	$\Delta\ln REV_{it}$ $REVDEC_{it}$ $REVDEC_{i,t-1}$	0.6231***	0.6131***
		(34.50)	(32.78)
ϕ_1	$TARGET_{it}$ $\Delta\ln REV_{it}$ $REVINC_{it}$ $REVINC_{i,t-1}$		0.0120
			(0.47)
ϕ_2	$TARGET_{it}$ $\Delta\ln REV_{it}$ $REVINC_{it}$ $REVDEC_{i,t-1}$		−0.0484
			(−0.79)
ϕ_3	$TARGET_{it}$ $\Delta\ln REV_{it}$ $REVDEC_{it}$ $REVINC_{i,t-1}$		0.1372***
			(3.11)
ϕ_4	$TARGET_{it}$ $\Delta\ln REV_{it}$ $REVDEC_{it}$ $REVDEC_{i,t-1}$		0.1785***
			(3.76)
	Adj. R^2	0.6451	0.6458
	N	94,255	94,255

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

$$\begin{aligned}\Delta \ln OC_{it} = {} & \beta_0 + \phi_0 TARGET_{\mathrm{it}} + \beta_1 \Delta \ln REV_{it} REVINC_{i,t} REVINC_{i,t-1} \\ & + \beta_2 \Delta \ln REV_{it} REVINC_{it} REVDEC_{i,t-1} + \beta_3 \Delta \ln REV_{it} REVDEC_{it} REVINC_{i,t-1} \\ & + \beta_4 \Delta \ln REV_{it} REVDEC_{it} REVDEC_{i,t-1} + \phi_1 TARGET_{it} \Delta \ln REV_{it} REVINC_{it} REVINC_{i,t-1} \\ & + \phi_2 TARGET_{it} \Delta \ln REV_{it} REVINC_{it} REVDEC_{i,t-1} + \phi_3 TARGET_{it} \Delta \ln REV_{it} REVDEC_{it} \\ & \times REVINC_{i,t-1} + \phi_4 TARGET_{it} \Delta \ln REV_{it} REVDEC_{it} REVDEC_{i,t-1} + \eta_{it}.\end{aligned} \quad (4)$$

2. Following Banker, Ciftci, and Mashruwala [2011], $\Delta\ln OC_{it}$ is the log change in operating costs for firm i in year t (between year t and year $t-1$); $\Delta\ln Rev_{it}$ is the log change in sales revenue. $REVINC_{it}$ $REVINC_{i,t-1}$ is a dummy variable that equals 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; $REVINC_{it}$ $REVDEC_{i,t-1}$ is a dummy variable that equals 1 if sales revenue increases in the current period but decreases in the previous period, and 0 otherwise; $REVDEC_{it}$ $REVINC_{i,t-1}$ is a dummy variable that equals 1 if sales revenue decreases in the current period and increases in the previous period, and 0 otherwise; $REVDEC_{it}$ $REVDEC_{i,t-1}$ is a dummy variable that equals 1 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. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

In the second column of table 7, we report coefficient estimates for the BCM model, showing consistent results. The estimates for model (4) (third column of table 7) indicate that the general pattern reported by BCM remains unchanged absent incentives to meet earnings targets. The 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 hypothesis on the relationship between incentives to meet earnings targets and the degree of cost stickiness in the optimistic and pessimistic cases. In the optimistic case, the degree of stickiness in the presence of incentives to meet earnings targets is $(\beta_3 + \phi_3) - (\beta_1 + \phi_1) = (0.5595 + 0.1372) - (0.7660 + 0.0120) = -0.0813$, versus $\beta_3 - \beta_1 = 0.5595 - 0.7660 = -0.2065$ in the absence of such incentives (the difference is equal to 0.1252, significant at the 0.01 level). In the pessimistic case, the degree of anti-stickiness in the presence of incentives to meet earnings targets is $(\beta_4 + \phi_4) - (\beta_2 + \phi_2) = (0.6131 + 0.1785) - (0.4942 - 0.0484) = 0.3458$, versus $\beta_4 - \beta_2 = 0.6131 - 0.4942 = 0.1189$ absent incentives to meet earnings targets (the difference is equal to 0.2269, significant at the 0.01 level). These findings suggest that incentives to meet earnings targets diminish the degree of cost stickiness (or, equivalently, increase the degree of anti-stickiness in the pessimistic case) even after controlling for managers' demand expectations, lending further support to the first hypothesis. As expected, the impact of incentives to meet earnings targets on the degree of cost stickiness is stronger in the pessimistic case than in the optimistic case (0.2269 vs. 0.1252, respectively, as computed earlier). Consistent with the second hypothesis, incentives to meet earnings targets encourage managers to cut costs more aggressively for concurrent sales decreases, both in the optimistic case and in the pessimistic case ($\phi 3 = 0.1372$ and $\phi 4 = 0.1785$, respectively, both significant at the 0.01 level). Overall, results for the BCM framework suggest that managers intentionally adjust resources to meet earnings targets, thereby lessening the degree of cost stickiness.

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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