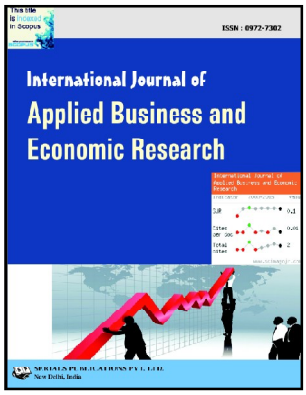


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# Impact of Managerial Optimism on Cost Stickiness: Evidence from China*

**Daecheon Yang[a] and Zhen-Ning Zhang[b]**

[a] *Associate Professor of Accounting, School of Business Administration, Chung-Ang University, Seoul Korea, E-mail:dcyang@cau.ac.kr*
[b] *Graduate Student, School of Business Administration, Chung-Ang University, Seoul Korea, E-mail: ninggood@yeah.net*

***Abstract:*** Managerial optimism affects top managers' operational expenditures. We test the impact of the optimism on asymmetric cost behavior. We postulate that optimistic managers who overestimate the future growth of their firms tend to maintain an excessive level of unused slack resources with disincentives to downsize, thus inducing a higher level of cost stickiness. The results show that cost stickiness is greater in firms with optimistic managers rather than in those with rational peers. The robustness tests using alternative measure show a consistent result. Our findings imply that optimistic managers might induce a higher level of over-slack resulting from distorted cost decisions.

***Keywords:*** Managerial optimism, Miscalibration, Better-than-average effect, Cost Stickiness

***JEL classifications:*** M41, G02

## INTRODUCTION

Recent behavioral researchers have become interested in the implications of managerial optimism or overconfidence[1]for distorted managers' decision-making (Hereafter, we use the term of "Optimism").[2] A hot-rising stream of literature describes over-investment decisions derived from optimistic managers (Heaton, 2002; Lin *et al.*, 2005; Malmendier and Tate, 2005; Huang *et al.*, 2011). Besides, a strand of studies on cost accounting investigates that managerial optimism affects operational costs incurred to maintain committed resources. The studies examine the effect of managerial optimism on the degree of cost stickiness under the various surroundings (Chen *et al.*, 2013; Banker *et al.*, 2014; Yang 2015).

The early literature on cost stickiness examines whether costs vary asymmetrically responding to the change in sales. Anderson *et al.* (2003) initially show the empirical evidence on the asymmetric cost phenomenon and many studies show that cost stickiness pervades under different settings (e.g., Balakrishnan



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*et al.*, 2004; Banker and Chen, 2006 a, b; Anderson *et al.*, 2007; Chen *et al.*, 2012; Chen *et al.*, 2013; Banker *et al.*, 2014; Via and Perego, 2014; Yang, 2015). Almost concurrently, subsequent studies center on the causes of cost stickiness. Some studies ascribe sticky costs to managerial private incentives stemming from the agency problem. Following the notion of Anderson *et al.* (2003), they investigate whether managerial private incentives such as empire-building or short-run preferences intensify the degree of sticky cost away from its optimal level (e.g., Balakrishnan and Gruca, 2008, Chen *et al.*, 2012; Kama and Weiss, 2012; Dierynck *et al.*, 2012; Balakrishana *et al.*, 2014).

A stream of literature describes that manager's private expectations induce sticky costs (e.g., Banker and Chen, 2006a; Banker and Byzalov, 2013; Banker *et al.*, 2013; Chen *et al.*, 2013; Banker *et al.*, 2014; Yang, 2015; Yang and Koo, 2016). In particular, the rapidly growing literature suggests an "overconfidence or optimism" explanation for cost asymmetry. Chen *et al.* (2013) suggest that greater overconfidence causes a higher degree of cost stickiness. Banker *et al.* (2014) suggest that cost stickiness conditional on a prior sales increase and cost anti-stickiness conditional on a prior sales decrease, thus reflecting the effect of managerial optimism. Yang (2015) shows that optimistic bidder CEOs who overestimate the merged firm's growth induce greater level of coststickiness than the rational peers.

During the past decades(the 1990s -2010s), China has experienced an unprecedented level of GDP growth.[3] Hence, this paper focuses on Chinese firms to collect the explicit evidence on how managerial optimism affects asymmetric cost behavior. Using a sample of 10,347 firm–year observations during the period from 2007 to 2016, we test whether cost stickiness in firms with optimistic managers exceeds that of firms with rational managers. The results of the additional tests are qualitatively similar to those of prior tests. Taken together, the results imply that optimistic managers in a growing playground play an empire-building game more joyfully, thus inducing greater cost stickiness.

Our contributions are twofold. First, we provide more explicit evidence in a rapidly-growing Chinese market that optimistic managers induce excessive operational costs, otherwise avoidable, in order to retain unused capacity resulting from over-slack. Our findings have a weight on an explanation for managerial expectations as an inducement of cost stickiness. Finally, some behavioral studies (especially, Lin *et al.*, 2005) measure managerial optimism via a management forecast error. Following Yang and Koo (2016), we complement the studies on managerial optimism by adopting the reinforced optimism measure in rapidly growing capital market.

## LITERATURE AND HYPOTHESIS

The early studies on cost stickiness posit that costs behave asymmetrically; costs decline less when sales decrease than their increase when equivalent sales increase (i.e., Anderson *et al.*, 2003; Balakrishnan *et al.* 2004; Noreen and Soderstrom 1994). Anderson *et al.* (2003) give an empirical evidence of cost stickiness phenomenon.[4] Several subsequent studies suggest that cost stickiness is pervasive in various corporate settings (e.g., Balakrishnan *et al.*, 2004; Banker and Chen, 2006; Anderson *et al.*, 2007; Chen *et al.*, 2012; Chen *et al.*, 2013; Banker *et al.*, 2014; Via and Perego, 2014; Yang, 2015).

Several studies has investigated various causes of cost stickiness. A stream of the literature attributes cost stickiness to private managerial incentives (i.e., Banker and Chen, 2006b; Balakrishnan and Gruca, 2008; Balakrishana *et al.*, 2011; Chen *et al.*, 2012; Dierynck *et al.*, 2012; Kama and Weiss, 2012). After Anderson *et al.* (2003) has postulated that cost stickiness results from the agency problem, the literature

describes that self-interested managers who pursue their personal utilities make sticky cost decisions, not to optimal from the viewpoint of the shareholders. Various studies has suggested that cost stickiness results from managers' private incentives (i.e.,Balakrishnan and Gruca, 2008; Kama and Weiss, 2012; Dierynck *et al.*, 2012; Balakrishnan *et al.*, 2014). In particular, Chen *et al.* (2012) suggest that empire-building incentives arising from the agency problem encourage cost stickiness from its optimal level.[5]

Meanwhile, the literature on the psychology of overconfidence or optimism draws on miscalibration and the better-than-average bias (Svenson, 1981; Lichtenstein *et al.*, 1982; Taylor and Brown, 1988; Keren, 1991; Larrick *et al.*, 2007; Moore and Healy, 2008; Merkle and Weber, 2011). Moore and Healy (2008) suggest that miscalibration is "excessive precision in one's belief," while the better-than-average effect is an "overplacement of one's performance relative to others." Miscalibration implies that overconfident CEOs incorrectly assess the value of potential projects based on their irrational beliefs, while the better-than-average effect implies that they overestimate future performance or project returns based on unrealistically positive views of themselves (see Baker and Nofsinger, 2010). The overconfidence or optimism explanation based on "miscalibration and the better-than-average effect" reflects a bias in CEOs' overestimation of future payoffs of their investments.

The behavioral literature on finance and accounting explores the effect of these cognitive biases on managers' financial decisions. First, the studies in finance area examine distorted investment decisions by using the sensitivity of investment to cash flow (Heaton, 2002; Lin *et al.*, 2005; Malmendier and Tate, 2005; Wang *et al.*, 2009; Huang *et al.*, 2011). They suggest that managerial optimism induces greater investment-cash flow sensitivity as evidence of higher agency costs combined with managers' empire-building incentives. Second, the hot-rising studies on accounting centers on the impact of managerial optimism in operational cost decisions (Chen *et al.*, 2013; Banker *et al.*, 2014; Yang, 2015). They explain a cause of cost stickiness as manager's over-expectation. In particular, Chen *et al.* (2013) propose that managerial overconfidence intensifies cost stickiness. Yang (2015) describes that optimistic bidder CEOs who overestimate the merged firm's growth induce greater coststickiness than the rational peers.

Here, our study examine a cause of cost stickiness as a behavioral explanation. Stemming from miscalibration and the better-than-average bias, optimistic managers overestimate the accuracy of their assessment of the future growth of their firms and thereby maintain an excessive level of committed resources. Optimistic managers' disincentives to downsize lead to empire-building decisions to retain the slack resources that they should otherwise cut in response to sales declines and to bear the costs derived from unused slack. Consequently, optimistic managers are more likely to retain unused capacity rather than dispose of committed resources even though sales fall, resulting in higher level of cost stickiness compared with their rational peers. We obtain the following hypothesis:

**Hypothesis:** *Optimistic managers induce greater cost stickiness than their rational peers do.*

## MODEL, DATA, AND STATISTICS

### Empirical Models

Lin *et al.* (2005) measured managerial optimism using management forecast error to examine the association between optimism and management's investment decisions. They employ management's forecasting error,

namely the difference between management's forecasted earnings and actual earningas a proxy for managerial optimism. However, the measure of Lin *et al.* (2005) has a *measurement bias* driven by time intervals between management's forecasts and actual results. We posit that the difference of *management's forecasts* and *averageanalyst's forecasts* might reflect managerial over-optimistic views of future operating performance because the average value of analyst's forecasts captures rational expectations from capital markets. Therefore, besides the measure (OPT1) by Lin *et al.* (2005), we add our adjusted measure (OPT2).

In relation to sticky cost specification, the prior literature includes an interaction term of optimism in their models (e.g., Chen *et al.*, 2013; Yang, 2015). To test our Hypothesis, we run empirical models that relate managerial optimism to SG&A cost stickiness. We start Anderson *et al.*'s (2003) regression which is widely used in the accounting literature on cost stickiness (see Eq.1), by adding the proxies of managerial optimism. In Eq. 1 (Baseline model), a significantly negative $\beta_2$ coefficient indicates the sticky behavior of SG&A costs in response to sales change. Next, in Eq. 2, we expect that the $\beta_3$ coefficient is also negative if cost stickiness is stronger for the firms with optimistic managers than for those with rational managers (as predicted by Hypothesis).

$$\Delta COST_{i,t} = \beta_0 + \beta_1 \times \Delta S_{i,t} + \beta_2 \times \Delta S_{i,t} \times DD_{i,t} + All\ interaction\ terms_{i,t} + \Sigma\beta_c \times Controls_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\Delta COST_{i,t} = \beta_0 + \beta_1 \times \Delta S_{i,t} + \beta_2 \times \Delta S_{i,t} \times DD_{i,t} + \beta_3 \times \Delta S_{i,t} \times DD_{i,t} \times Optimism_{i,t} + All\ interaction\ terms + \Sigma\beta_c \times Controls_{i,t} + \varepsilon_{i,t} \quad (2)$$

where $\Delta COST_{i,t}$ is the natural logarithm of the ratio of SG&A costs to lagged SG&A costs for firm *i* in year *t*, $\Delta S_{i,t}$ is the natural logarithm of the ratio of sales to lagged sales for firm *i* in year *t*, and $DD_{i,t}$ is a dummy variable that equals 1 if the sales in year *t* are lower than one in year *t*-1, and 0 otherwise.0. Our proxies of managerial optimism are divided into OPT1 and OPT2. Here, OPT1 (see Lin *et al.*, 2005) is an indicator variable that takes the value 1 if management's sales (or earnings) forecasts are greater than actual sales (or earnings), and 0otherwise. OPT2 is an indicator variable that takes the value of 1 if management's sales (or earnings) forecasts are greater than average analyst's sales (or earnings) forecasts, otherwise 0.

For additional tests, we adopt Eq. 3 to measure the cost stickiness at the firm level. We follow the firm-level measure of Weiss (2010). Cost-stickiness is defined as the ratio of cost decrease with decreasing sales and the corresponding rate of cost increase with increasing sales as follows:

$$WSTICKY = [\log\left(\frac{\Delta COST}{\Delta S}\right)_{im} - \log\left(\frac{\Delta COST}{\Delta S}\right)_{i,p}] \quad (3)$$

Where *m* is the periods with a decrease in sales and *p* is the same periods with an increase in sales, $\Delta COST$: (SG&A costs/ lagged SG&A costs) for firm *i* in year *t*, and $\Delta S$: (sales / lagged sales) for firm i in year t.

Next, we estimate an adjusted specification linking managerial optimism and *WEISS_STICKY*. Eq. 4 shows the model specification for testing whether managerial optimism intensifies sticky costs responding to the change of sales.

$$WEISS\_STICKY_{i,t} = \beta_0 + \beta_1 \times Optimism_{i,t} + \Sigma_{c=2}^{6}\beta_c \times Controls + \varepsilon_{i,t} \quad (4)$$

In Eq. 4, we expect that the $\beta_1$ coefficient will be negative if the degree of cost stickiness is greater for the optimistic managers than for their rational peers.

Table 1 shows definitions of all other variables. Here, following Anderson *et al.* (2003), Chen *et al.* (2013) and Yang (2015), we control for four economic factors that may affect the cost stickiness: firm size, FCF ratio, book leverage, and asset intensity.

**Table 1**
**Definition of Dependent/Independent Variables**

| | *Definitions* |
|---|---|
| Dependent Variables | |
| ΔCOST | Natural logarithm of (SG&A costs/ lagged SG&A costs) for firm *i* in year *t* |
| Independent Variables | |
| ΔS | Natural logarithm of (sales / lagged sales) for firm *i* in year *t* |
| DD | Dummy variable equal to 1 if sales in year *t* is lower than one in year *t-1*, and 0 otherwise |
| OPT1_SALE | Dummy variable equal to 1 if Management forecast for sales higher than Actual sales, and 0 otherwise |
| OPT1_EARN | Dummy variable equal to 1 if Management forecast for earnings higher than Actual earnings, and 0 otherwise |
| OPT2_SALE | Dummy variable equal to 1 if Management forecast for sales higher than analysts for sales, and 0 otherwise |
| OPT2_EARN | Dummy variable equal to 1 if Management forecast for earnings higher than analysts for earnings, and 0 otherwise |
| SIZE | Natural logarithm of book value of assets of firm *i* in year *t* |
| LEV | Natural logarithm of book value of debts divided by book value of assets of firm *i* in year *t* |
| INT | Natural logarithm of book value of assets divided by sales of firm *i* in year *t* |
| CFO | Natural logarithm of cash flows for operating divided by book value of assets of firm *i* in year *t* |

*Note:* This table describes the definitions of key variables in this study. They are constructed based on the two databases, CSMAR and RESSET over the period of 2007-2016. As following the variable construction procedure in Anderson *et al.* (2003), our sample consists of 10,347 firm-year observations excluding financial and utility firms.

## Data

Our data are drawn from the intersection of the CSMAR (China Stock Market & Accounting Research) and RESSET databases over the period 2007 to 2016 after the new enterprise accounting standards issued in 2006. We obtain the cost and financial data from the CSMAR to construct dependent variable and other controls. Also, we collect management & analyst forecast data related to the independent variable from the RESSET. We start from 30,961 firm–year observations including the firms included in the SSE (Shanghai Stock Exchange) and SZSE (Shenzhen Stock Exchange).We exclude 20,614 firm–year observations as SG&A cost and other financial data is missing from the CSMAR or RESSET. As a result, our final sample consists of 10,347 firm–year observations.

## EMPIRICAL RESULTS

### Descriptive Statistics and Correlations

Panel A of Table 2 shows the descriptive statistics for all variables in the regressions. The sample comprises 10,347 observation during 2007 to 2016. The average of Δ*COST* is 0.1669, representing a 18.16% increase from the previous period. The mean of Δ*S* is 0.1315 indicating that sales on average increased by 14.06% from the period year. The mean value of *OPT1_SALE* averagely indicates 77% frequency of optimistic management's forecast error in all the samples. Whereas, the mean value of *OPT2_SALE* indicates 38% frequency of over-optimistic management's forecast beyond analyst's average forecast in all the samples. The average ratio of asset intensity, one of the main controls, is approximately 166.67%.

Meanwhile, Panel B of Table 2 compiles the Pearson (above the diagonal) and Spearman (below the diagonal) correlation coefficients for the variables used in our study. As shown, *ΔCOST* correlates positively and significantly with the sales at or below 1% level. In controls, the correlation between *SIZE* and *ΔCOST* is significantly positive but the correlation between *LEV* and Δ*COST* is significantly negative.

**Table 2**
**Descriptive Statistics & Correlations (N = 10,347)**

Panel A. Descriptive Statistics

| | *Mean* | *Standard Deviation* | *Minimum* | *Median* | *Maximum* |
|---|---|---|---|---|---|
| Dependent Variables | | | | | |
| ΔCOST | 0.1669 | 0.3058 | -2.2857 | 0.1461 | 5.5046 |
| Independent Variables | | | | | |
| ΔS | 0.1315 | 0.4202 | -4.1572 | 0.1127 | 7.1725 |
| DD | 0.2900 | 0.4540 | 0.0000 | 0.0000 | 1.0000 |
| OPT1_SALE | 0.7700 | 0.4210 | 0.0000 | 1.0000 | 1.0000 |
| OPT1_EARN | 0.7400 | 0.4400 | 0.0000 | 1.0000 | 1.0000 |
| OPT2_SALE | 0.3800 | 0.4860 | 0.0000 | 0.0000 | 1.0000 |
| OPT2_EARN | 0.3900 | 0.4480 | 0.0000 | 0.0000 | 1.0000 |
| SIZE | 21.668 | 1.2188 | 14.108 | 21.506 | 28.036 |
| LEV | -1.0607 | 0.7178 | -4.9505 | -0.9107 | 2.6182 |
| INT | 0.6664 | 0.6996 | -2.4350 | 0.6395 | 7.3388 |
| CFO | -0.1828 | 0.7576 | -4.2755 | -0.1877 | 3.2918 |

*Note:* This table summarizes the descriptive statistics of the dependent and independent variables investigated in the empirical analysis of this study. It presents the mean, median, standard deviation, Minimum, and Maximum. The two databases used in this study are the CSMAR and RESSET over the period of 2007-2016. Our sample consists of 10,347 firm-year observations excluding financial and utility firms. Variable definitions are listed in Appendix.

Panel B. Correlation Coefficients

| *Variables* | | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* | *(8)* | *(9)* |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) | ΔCOST | 1 | .594*** | -.314*** | .013 | -.012 | .056*** | -.038*** | -.019 | .012 |
| (2) | ΔS | .594*** | 1 | -.524*** | -.009 | -.025** | .083*** | .015 | -.157*** | .090*** |
| (3) | DD | -.314*** | -.524*** | 1 | -.004 | .019 | -.050*** | .027*** | .153*** | -.107*** |
| (4) | OPT1_SALE | .013 | -.009 | -.004 | 1 | -.002 | -.031*** | -.014 | -.011 | .006 |
| (5) | OPT2_SALE | -.012 | -.025** | .019 | -.002 | 1 | -.001 | .000 | -.010 | .008 |
| (6) | SIZE | .056*** | .083*** | -.050*** | -.031*** | -.001 | 1 | .362*** | -.052*** | .083*** |
| (7) | LEV | -.038*** | .015 | .027*** | -.014 | .000 | .362*** | 1 | -.188*** | .241*** |
| (8) | INT | -.019 | -.157*** | .153*** | -.011 | -.010 | -.052*** | -.188*** | 1 | -.921*** |
| (9) | CFO | .012 | .090*** | -.107*** | .006 | .008 | .083*** | .241*** | -.921*** | 1 |

*Note 1:* The values of OPT1 and OPT2 are represented on a basis of sales.

*Note 2:* *, **, and *** indicate significance at the 10%, 5%, and 1% levels(2-tailed).

## Regression Results

Managers consider operational cost decisions that involve the maintenance and reduction of committed resources. We postulate that sticky SG&A costs are intensified by the degree of managerial overconfidence (related to our Hypothesis). Prior to main tests, we test whether cost stickiness is pervasive across companies. In Tables 3 and 4, the baseline model (Column (1)) shows the coefficient estimates for panel regression, given a significantly positive $\beta_1$ coefficient of $\Delta S$ (coefficient = 0.5458, *t*-statistic = 71.45), the $\beta_2$ coefficient of $\Delta S \times DD$ is significantly negative (coefficient = -0.2398, *t*-statistic = -14.43). This result exhibits the pervasiveness of cost stickiness in general firms, which is consistent with the cost accounting literature (especially Anderson *et al.*, 2003).

Next, in relation to our Hypothesis, we run the modified specification (Eq. 2) by including the interaction term of the optimism into the sticky cost model following Chen *et al.* (2013) and Yang (2015). Table 3 shows the regression results by incorporating the optimism measure of Lin *et al.* (2005). OPT 1 in Colum (2) is measured by the error of management's sales forecasts and OPT 2 in Colum (3) is done by the error of management's earnings forecasts. As predicted, the results in Columns (2) and (3) of Table 3 present that all the $\beta_3$ coefficients of $\Delta S \times DD \times Overconfidence$ are significant and negative (Column (2): coefficient = -0.1596, *t*-statistic = -5.30, and Column (3): coefficient = -0.0970, *t*-statistic = -3.43), while the $\beta_2$ coefficients of $\Delta S \times DD$ are significantly negative (Column (2): coefficient = -0.1101, *t*-statistic = -3.72, and Column (3): coefficient = -0.1660, *t*-statistic = -6.10).

Also, In Table 4, the results of the alternative tests by using our adjusted measure of managerial optimism are similar to those of the prior tests. Columns (2) and (3) of Table 4 show that all the $\beta_3$ coefficients of $\Delta S \times DD \times Overconfidence$ are also significantly negative (Column (2): coefficient = -0.0480, *t*-statistic = -1.97, and Column (3): coefficient = -0.0528, *t*-statistic = -2.21), while all the $\beta_2$ coefficients of $\Delta S \times DD$ have significantly negative values (Column (2): coefficient = -0.2209, *t*-statistic = -11.51, and Column (3): coefficient = -0.2128, *t*-statistic = -10.31).

**Table 3**

**Impact of CEO Optimism Using Lin *et al.* (2005)**

| | *(1) Baseline Model* | | *(2) OPT1_SALE* | | *(3) OPT1_EARN* | |
|---|---|---|---|---|---|---|
| | *Estimate* | *t-stat* | *Estimate* | *t-stat* | *Estimate* | *t-stat* |
| Intercept | -0.1796 | -3.80 | -0.1770 | -3.75 | -0.1823 | -3.86 |
| ΔS | 0.5058 *** | 71.45 | 0.5053 *** | 71.5 | 0.5057 *** | 71.4 |
| ΔS*DD | -0.2398 *** | -14.43 | -0.1101 *** | -3.72 | -0.1660 *** | -6.10 |
| ΔS*DD *OPT1 | | | -0.1596 *** | -5.30 | -0.0970 *** | -3.43 |
| All Other Interactions | Yes | | Yes | | Yes | |
| SIZE | 0.0088 *** | 4.18 | 0.0087 *** | 4.15 | 0.0090 *** | 4.25 |
| LEV | -0.0317 *** | -8.60 | -0.0315 *** | -8.55 | -0.0320 *** | -8.68 |
| INT | 0.0785 *** | 8.59 | 0.0777 *** | 8.50 | 0.0773 *** | 8.45 |
| CFO | 0.0639 *** | 7.69 | 0.0629 *** | 7.57 | 0.0632 *** | 7.60 |
| Industry Fixed Effect | Yes | | Yes | | Yes | |
| Year Fixed Effect | Yes | | Yes | | Yes | |
| N | 10,347 | | 10,347 | | 10,347 | |
| Adjusted-$R^2$ | 0.3785 | | 0.3801 | | 0.3792 | |

*Note:* *t*-statistics are calculated based on robust standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are listed in Table 1.

**Table 4**

**Impact of CEO Optimism Using Our adjusted Measure**

| | *(1) Baseline Model* | | *(2) OPT2_SALE* | | *(3) OPT2_EARN* | |
|---|---|---|---|---|---|---|
| | *Estimate* | *t-stat* | *Estimate* | *t-stat* | *Estimate* | *t-stat* |
| Intercept | -0.1796 | -3.80 | -0.1796 | -3.80 | -0.1782 | -3.77 |
| ΔS | 0.5058 *** | 71.45 | 0.5058 *** | 71.46 | 0.5053 *** | 71.34 |
| ΔS*DD | -0.2398 *** | -14.43 | -0.2209 *** | -11.51 | -0.2128 *** | -10.31 |
| ΔS*DD * OPT2 | | | -0.0480 ** | -1.97 | -0.0528 ** | -2.21 |
| All Other Interactions | Yes | | Yes | | Yes | |
| SIZE | 0.0088 *** | 4.18 | 0.0088 *** | 4.17 | 0.0088 *** | 4.17 |
| LEV | -0.0317 *** | -8.60 | -0.0317 *** | -8.61 | -0.0316 *** | -8.56 |
| INT | 0.0785 *** | 8.59 | 0.0788 *** | 8.61 | 0.0776 *** | 8.47 |
| CFO | 0.0639 *** | 7.69 | 0.0641 *** | 7.71 | 0.0629 *** | 7.56 |
| Industry Fixed Effect | Yes | | Yes | | Yes | |
| Year Fixed Effect | Yes | | Yes | | Yes | |
| N | 10,347 | | 10,347 | | 10,347 | |
| Adjusted-$R^2$ | 0.3785 | | 0.3787 | | 0.3788 | |

*Note:* *t*-statistics are calculated based on robust standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are listed in Table 1.

Taken together, the resultssuggest that the degree of cost stickiness is intensified by managerial optimism, thereby supporting our Hypothesis.

## Robustness Tests by Alternative Measure

Also, in Table 5, we additionally test the effect of managerial optimism on cost stickiness using the sticky measure of Weiss (2010). In Table 5, all the $\beta_1$ coefficients of managerial optimism are significant and negative (OPT1: coefficient = -0.0386, *t*-statistic = -2.01; OPT2: coefficient = -0.0425, *t*-statistic = -2.14). The results remain robust compared with those of prior tests in Tables 3 and 4.

**Table 5**
**Alternative Tests Using Weiss (2010) Measure**

| | *(1) OPT1_ SALE* | | *(2) OPT2_ SALE* | |
|---|---|---|---|---|
| | *Estimate* | *t-stat* | *Estimate* | *t-stat* |
| Intercept | -0.2329 | -1.32 | -0.2188 | -1.24 |
| W_STICKY | -0.0386 ** | -2.01 | -0.0425 ** | -2.14 |
| SIZE | 0.0136 *** | 2.73 | 0.0132 *** | 2.65 |
| LEV | 0.0526 *** | 4.03 | 0.0530 *** | 4.06 |
| INT | 0.1179 *** | 3.49 | 0.1187 *** | 3.51 |
| CFO | -0.0879 *** | -2.80 | -0.0885 *** | -2.83 |
| Industry Fixed Effect | Yes | | Yes | |
| Year Fixed Effect | Yes | | Yes | |
| N | 2,499 | | 2,499 | |
| Adjusted-$R^2$ | 0.0166 | | 0.0168 | |

*Note 1:* The values of OPT1 and OPT2 are represented on a basis of sales.

*Note 2:* *t*-statistics are calculated based on robust standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are listed in Table 1.

In sum, our findings indicate that managerial optimism expedites more strongly enforces them to maintain committed costs without downsizing. This implies possible over-slack and a consecutive cost-locking problem, especially when the firm's performance worsens.

## CONCLUSION

Managerial optimism, manifested through biased cognitive perceptions, affects top managers' distorted operational expenditures.

We examine that managerial optimism strengthens managers' asymmetric cost decisions. We postulate that optimistic managers overestimate the accuracy of their assessment of the future growth of their firms and maintain excessive slack resources when corporate performance decreases, thus inducing cost stickiness. The results of basic tests using the specification of Anderson *et al.* (2003) suggest in greater cost stickiness in firms with optimistic managers. Further, the results of alternative tests by using the Weiss model remain robust.

Consequently, our findings can imply the possibility of over-slack stemming from managerial optimism.

## NOTES

1. "Optimism"manifests irrational and optimistic view for future predictions reflecting miscalibration and the better-than-average effect, interchanged with the term "Overconfidence" in the financial research area.
2. The cognitive psychology literature describes that top managers of a firm are, on average, overconfident or optimistic, because promotions in corporations are typically based on past performance (Lichtenstein and Fischhoff, 1977; Koriat *et al.,* 1980; Lichtenstein *et al.,* 1982; Keren, 1991; Kruger and David, 1999; Alba and Hutchinson, 2000; Shefrin, 2001; Soll and Klayman, 2004; Goel and Thakor, 2008; Hackbarth, 2008).
3. China's GDP grew approximately 30 times, from US$360 billion in the early 1990s to US$11,007 billion by 2015 (which is obtained from the World Bank *database*).
4. Anderson *et al.* (2003) document that sticky costs relate to adjustment costs that arise when a firm reduces its committed resources. For example, adjustment costs related to human resources arise from layoffs (e.g., retirement pay), employment (recruitment and education costs), loss of morale, and so on. Adjustment costs may depend on the size of unused committed resources.
5. The empire-building tendency of executives has been a popular explanation for managerial overinvestment (Jensen, 1986, 1993; Grossman and Hart, 1982; Stulz, 1990; Stein, 2003). Managers may have an excessive taste for running large firms as opposed to simply profitable ones, reflecting that their interests diverge from those of their stockholders (Stein, 2003).

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