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Managerial discretion and agency cost in Indian market

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ABSTRACT

This paper investigates empirically the impact of managerial discretion on agency cost from the perspective of SG&A cost asymmetry and examines how corporate governance moderates this relationship. The analysis shows mixed evidence in favor for cost behavior and managerial choices in the Indian market. The cost asymmetry involves not only cost stickiness but also the anti-sticky behavior of SG&A cost under certain circumstances. The main drivers for this disparity are owing to manager's resource adjustment decision, the future expectation of sales and managers' empire-building behavior. Furthermore, findings suggest that strong corporate governance alleviates empire-building behavior of managers. Additional analysis shows, the asymmetric behavior of SG&A cost in crisis period is mainly a result of managers' resource adjustment decision and future expectation of sales change. Manager's empire-building behavior does not play an explicit role in this period. Next, the findings show that managers' discretion is influenced by future value creation potential of SG&A cost. Manager's empire-building behavior is more pronounced in low-value creation sample firms compared to high-value creation sample. Thus, manager's choice for resource adjustment decision and empire-building behavior changes according to the future value creation of SG&A cost, financial conditions and corporate governance mechanisms in Indian companies. To the best of our knowledge, this is the first study performed in Indian capital market where the SG&A cost asymmetry tests the managers' empire-building behavior. Overall, findings of the study indicate manager's resource adjustment decisions and empire-building behavior caused by their consideration and this results in a form of agency costs. In comparison with developed markets, Indian markets have relatively less agency problem due to managerial empire-building behavior.

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1. Introduction

The increasing proportions of multinational enterprises are widely conjectured as managerial desires for welfare rather than the enhancement of shareholder value. This conflict of interests concerning shareholders and managers termed as agency cost is an intensifying disquiet pertinent to contemporary scenario. As opined by Jensen and Meckling (1976), if both parties in the relationship are utility maximizers, there is a probable chance to believe that the agent will not act in the best interest of the shareholders. This utility maximization as stated by Stulz (1990) can be in the form of empire building behavior, the consumption of corporate resource prerequisites, the avoidance of optimal risk investment and manipulating financial figures to increase compensation structure. Restraint on this behavior often comes with a cost in the form of monitoring and bonding cost. For instance Murphy (1985) highlighted that agency costs contribute a significant portion of firm's expenses when the focus on earnings based incentives is to increase the value of the firm. The

further relationship between firm performances, as measured by shareholders' return, is positively related to managerial incentives. Similarly, the findings of Jensen and Murphy (1990), argue that CEOs' total compensation changes according to changes in shareholders' wealth.

With the separation of ownership and control, executive power significantly affects the design of compensation in companies as evidenced by Bebchuk and Fried (2003). In particular, the incentive problem arises, when decision making in a firm is the province of managers who are not the firm's shareholders. Managers always try to expand the business beyond the optimal level to provide opportunities for managerial satisfaction. On the other hand, the expansion of staff and expansion of physical plant and equipment are possible only when the company has sufficient profit (Williamson, 1963). The enlargement of staff expense and increase in executive compensation will naturally reflect in SG&A cost (Selling, General and Administrative), which is ought to rise for the duration of good times and decline during bad times. SG&A cost serves as a proxy to capture agency induced managerial expenses as a measure of agency cost. The ratio of SG&A expense to total assets is almost 27% in developed economies and 15% in emerging economies like India. SG&A cost comprises the greatest portion of the overhead cost in company's accounting income statement, including advertising and payroll costs, salaries, commissions and cost related to

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travel for the company's salespeople. Our fundamental accounting assumption is that cost should move proportionately with activity. Prior empirical studies of Noreen (1991) and Noreen and Soderstrom (1997) argue that all costs change proportional to change in activity. However, recent research studies of Anderson, Banker, and Janakiraman (2003), Chen, Lu, and Sougiannis (2012) find that SG&A cost behaves asymmetrically, explicitly, it increases more for increases in sales than they decrease when demand decreases. They report cost should not move mechanically with changes in activity, which are determined by the managers' resource adjustment decision. For instance, empirical evidence by Chen et al. (2012), finds that empire-building managers' increase SG&A cost at a fast pace when sales upsurge and decrease too slowly when sales shrink with the intention of increasing their compensation, power, and status. Self-serving managers constantly try to upsurge office payroll and expenditures often by increasing SG&A expense. Similarly, they delay the cutting of office payroll and expenses when sales downturn.

This movement of SG&A cost leads to cost stickiness and increase agency cost to the firm. Anderson et al. (2003), and Balakrishnan and Gruca (2008), attribute the fundamental cause of sticky costs is the resource adjustment decisions of managers when they try to maximize their welfare instead of a shareholder. The managerial downsizing literature of Hicks (1935) and Bertranad and Mullainathan (2003) indicates that the average managers do not try to increase the firm size, they avoid generating new plants and distracting old ones. Managers always prefer normal life and try to resist challenging decisions and expensive efforts allied with downsizing. The average manager might be characterized by quite life model than by empire building model. The downsizing literature, however, focuses more on the components of SG&A like headcount in companies where SG&A cost represents slack resources channeled into overhead and staff expenses.

Both empire-building and the downsizing, shift agency cost from its optimal level. In the case of asymmetric adjustment cost, managers are more to be expected to postpone downward adjustment in response to an adverse demand shock. The downward adjustment cost increases with agency problem, especially because self-servicing managers are reluctant to scale down committed resources linked to their personal benefits. Especially managers are less likely to reduce discretionary SG&A spending at times of declines if they must give up their private benefits from such expenditure. Prior studies ignored the effects of managerial incentives on SG&A cost behavior. Chen et al. (2012), try to find, the association between SG&A cost asymmetry and agency problem in developed market and the study argues that sticky behavior of SG&A cost is positively associated with managerial empire-building behavior and negatively related to strong corporate governance efficiency. Kama and Weiss (2013), show that incentives to meet earning targets induce managers to expedite downward adjustment of slack resources, for sales decrease leads to anti-sticky behavior of SG&A cost. This result in agency cost to the firm because these decisions maximize managers' wealth, not firm value. Similarly, findings of Balakrishnan, Petersen, and Soderstrom (2004) develop arguments that costs are likely to be anti-sticky when current capacity utilization is low. The study of Banker, Chen, and Robinson (2006), shows that the type of incentive contract will be affecting empire-building behavior of managers. An efficient compensation contract will motivate the managers in reducing unproductive parts of current spending and motivate them to invest in activities that create good future value.

Most of the empirical studies on cost asymmetry and related agency problem have been in developed countries. These do not apply to India, where underdeveloped capital markets exist with the less active take-over and greater dependence on external debt as a source of finance. Lack of standardized accounting measure, less transparency in financial reporting and the governing systems and enforcement are different from the developed market (Ghosh, 2003; Sarkar & Sarkar, 2000). Managerial markets are not well developed in emerging economies due to the intervention of founder family members. Particularly, in India, most of the enterprises are family owned, and a large number of board

members are associated with the founder of the firm (Ghosh, 2006; Fagnanas, 2006). Chakraborty (2010) argues that family controls each firm in a business group, and the agency problems between shareholders and managers are not severe in Indian corporates. Hence, there is a chance that a different kind of agency problem between owners and minority shareholders occurs. Hence, after the economic liberalization in 1991 family business groups in India recognized the need for professional managers to compete for Indian business with global markets (Kumar, 2009; Sinha, 2010). Consequently, this results in a rising trend in average compensation of Indian CEO. Subsequently variable pay and stock option are introduced to motivate CEO of Indian firms. On the contrary, Jain, Shveta, and Surendra (2013) found that 78.27% of Indian companies have no incentive plans to motivate senior managers to work towards an increase in corporate value and CEO and managing director hold less than 10% of equity only.

Chakrabarti et al. (2011) argue that without implementing fully, the current tools in executive compensation policy results in an inefficient compensation contract in Indian companies. Sanan and Yadav (2011) find an increase in corporate governance regulations after liberalization, yet the overall enforcement of the Indian corporations was only moderate. The above discussion motivates us to conduct the present study on a similar line and to test in the context of developing markets like India where weak corporate governance and in effective incentive contract for CEO exist. The real intention behind this study is worth exploring since studies have not tested the behavior of SG&A cost asymmetry in Indian firms and the relationship between these cost asymmetry and agency cost. Furthermore, the study tries to examine whether corporate governance mechanism in India is sufficient to moderate the managerial discretion associated with agency problem.

2. Hypothesis development

In the present study, we try to test the hypothesis established by Chen et al. (2012) pertaining to the asymmetrical behavior of SG&A cost and the anti-sticky behavior in the Indian market. In other words, the study tries to test whether SG&A cost increases more when demand upsurges than they decrease when demand diminutions or if they escalate to a reduced magnitude of a 1% increase in sales revenue than they wane for a 1% decrease in sales revenue (Kama & Weiss, 2013). Based on these conjectures the following hypothesis is framed.

H1. SG&A cost behaves asymmetrically in response to an upsurge or shrinkage in sales revenue.

Manager's anticipation about future plays a crucial role in SG&A cost asymmetry, and the permanence of a demand reduction is likely to get stronger with the continuous decline in revenue. Managers are more likely to believe that sales revenue decline tends to be more permanent when it arises in a two consecutive period and will motivate managers to hasten SG&A cost, resulting in less stickiness or anti-stickiness leading to the second hypothesis.

H2. Stickiness of SG&A cost is less pronounced when there is an adverse demand shock in two successive years.

The firm with high employee intensity causes higher adjustment cost, because the firm uses more employees to support its sales revenue. For the duration of the drop in revenue, employees are more costly for the reason that employers must pay severance cost. An upsurge in demand forces them to hire new employees while imparting excess training costs as opined by Anderson et al. (2003), Chen et al. (2012), and Banker, Huang, and Natarajan (2011). The managers are reluctant to scale down resources during demand shrinkages indicating SG&A cost stickiness and anti-stickiness if they are ready to cut back SG&A cost when sales decline, based on which the following hypothesis is framed.

H3. Firm's employee intensity is positively associated with the degree of SG&A cost asymmetry.

Studies like Anderson et al. (2003) and Subramaniam and Weidenmier (2003) tested the impact of asset intensity on SG&A cost stickiness and suggested that disposing asset is costly when demand drops. While disposing of assets the company incurs selling cost and loses firm-specific installation and customization cost leading to more adjustment costs. SG&A cost shows sticky behavior when this cost relies more on assets of the company and anti-stickiness or less stickiness otherwise. Based on this the fourth hypothesis is:

H4. The degree of SG&A cost asymmetry is positively associated with firms' asset intensity.

2.1. Managerial empire-building behavior and SG&A cost stickiness

This section develops a hypothesis for estimating the relationship between managerial empire-building behavior and SG&A cost stickiness. The study follows accounting and corporate governance literature and adoption of FCF (free cash flow), CEO Tenure, CEO horizon and managerial compensation to proxy for manager's empire-building behavior due to the agency relationship, Chen et al. (2012).

Studies of Jensen (1986) and Stulz (1990) argue that managers prefer investment because their perquisites increase with investment even though the firms invest in negative NPV projects. Richardson (2006) finds that managers spend recklessly when the firm has positive FCF, so there is a positive relationship between higher FCF and overinvestment. Chen et al. (2012) and Jensen (1986), opine that aberrant activities of managers depend upon the availability of FCF, the firms that have exceptionally well and large FCF are expected to finance it in operations or negative NPV projects and are reluctant to pay out to its shareholders. Managers have a greater opportunity for over investing in SG&A cost when FCF is higher. Otherwise, they have less chance for an empire-build. The empirical estimation of Chen et al. (2012) shows that managers increase SG&A cost more when sales upsurges than they decay when sales decline. Based on this prediction the following hypothesis is created.

H5. Firm's free cash flow is positively associated with SG&A stickiness after adjusting for known economic causes of the asymmetry.

Hill and Phan (1991), find a positive association between firm size and CEO compensation when there is a longer CEO tenure. Longer CEO tenure enhances CEO's time to build influences within firms and decide compensation packages according to their preferences. CEO tenure increases managerial empire-building behavior and also leads to greater SG&A cost stickiness. The above discussion hints to our next hypothesis:

H6. The relation between SG&A cost stickiness and CEO tenure is stronger when the CEO tenure is longer, after adjusting for known economic causes of the asymmetry.

Manager's empire-building incentives should increase with the number of years the CEO is expected to continue in the workplace. On contrast managers who approach near retirement or expected to leave their firms within a short span of time, should lessen their empire-building behavior (Murphy, 1985; Rose, 1997). The empirical results suggest that SG&A cost stickiness is less when the CEO is in near retirement. The short CEO horizon causes less empire building and more likely to cut SG&A cost when mandatory. This leads to our hypothesis:

H7. The SG&A cost stickiness decreases in the year of CEO change or the year nearly before the CEO change, after adjusting for known economic causes of the asymmetry.

Empire-building increases manager's power by increasing the resources under their control. It is also associated with an increase in manager's compensation. Change in compensation is positively related to the growth in sales (Jensen, 1986). When the proportion of non-fixed pay in CEO's total compensation increases, SG&A cost stickiness also

increases. Contrarily, the proportion of fixed pay in CEO's total compensation should be negatively associated with cost stickiness (Kannianen, 2000). Chen et al. (2012) points when fixed payments accounts for a larger proportion of CEO's total compensation leads to reductions in SG&A cost stickiness. Based on these arguments, the following hypothesis is formulated:

H8. The percentage of fixed pay in CEO's total compensation decreases the degree of SG&A cost stickiness after adjusting for known economic causes of the asymmetry.

2.2. Managerial empire-building behavior and corporate governance

Previous studies tested the effects of different corporate governance mechanisms on firms' performance and managerial behavior (Larcker, Richardson, & Tuna, 2007). Bhagat and Black (1998) and Fama (1980) pointed out that independent directors have incentives to promote the interest of shareholders and be the active monitors to protect their reputation and for not being sued by shareholders. Thus, the most powerful argument arises from agency theory which concludes that an independent board structure improves the board's control over management (Sarkar, 2009). Brickley et al. (1997) and Balasubramaniam (2014) propose that CEO duality reduces the monitoring effectiveness of the board over management and supports, separation of CEO and chairman role is useful for preventing conflicts between shareholders and managers. Singh and Davidson (2003), find empirical evidence that the board size and composition are negatively associated with firm size. Studies of Adams and Hamid (2005), find that larger board perform better than the smaller board. On the other hand, majority of prior studies like Yermack (1996), are favoring smaller boards. The present study tries to test whether board size decreases corporate governance quality. Based on the above arguments the following hypothesis is formulated.

H9. The relation between agency problem and SG&A cost stickiness is stronger in firms with weaker corporate governance.

3. Methodology

3.1. Sample selection

The panel data estimate includes annual data for Indian industrial firms covering 16 years from 1997 to 2012. Data collected from CMIE (Prowess) Database for all the 500 firms of S&P CNX 500 index. The sample selection procedure is illustrated in Table 1. The final dataset consists of 170 firm observations after adjusting for the missing value, outliers and those with SG&A cost exceeding sales revenue.³

3.2. Variable measurement

To test our hypothesis, we used variables such as agency variables, economic variables, and corporate governance variables. The primary variables used in our study are SG&A costs and sales revenue. The interaction with decrease dummy is used along with all the variables in the analysis. Decrease dummy is a variable equal to 1 when revenue in period t is less than revenue in $t - 1$ and 0 otherwise.

The variables are based on the prior studies of Anderson et al. (2003) and Chen et al. (2012). The study controls for various economic factors of SG&A cost. First, the study controls for employee intensity and asset intensity, which are calculated as the ratio of the total number of employees and assets to sales revenue. Next, we control for successive decrease that indicates two consecutive decreases of sales revenue as

³ The study follows Chen et al. (2012) and Anderson et al. (2003) suggestions and exclude unusual observation where SG&A cost are greater than sales revenue.

Table 1
Sample selection procedures.

Step	Observations deleted	Observations remaining
1. Total observations from prowest database for 1997 to 2012	500 * 16 = 8000	8000
2. Drop observation with missing data on SG&A costs and sales revenue for the selected period from 1997 to 2012 and observations in which SG&A cost is higher than sales revenue.	123 * 16 = 1968	6032
3. Drop observation with missing data on number of employees and managerial compensation, free cash flow and board size.	120 * 16 = 1920	4112
4. Drop observation with outliers on agency, economic and corporate governance variables.	70 * 16 = 1120	2992
5. Drop observation with outliers on SG&A cost and sales revenue.	17 * 16 = 272	2720
Total observation for analysis	170 * 16 = 2720	2720

Note: The study collected data from prowest data base over the period 1997–2012. The annual data collected for all the 500 firms of S&P CNX 500 index.

a proxy for managers' future expectation. Finally the study used stock return as a proxy for stock performance.

To test managerial empire-building behavior the study used FCF (free cash flow), CEO Tenure, CEO horizon, and CEO fixed pay as in [Chen et al. \(2012\)](#). FCF is used as a proxy for managerial empire-building behavior. CEO tenure is the number of years' service provided by CEO in the company. CEO horizon is an indicator variable that indicates the number of years the managers expects to remain in a particular company. CEO fixed pay is the proportion of salary plus bonus to total compensation. The study used three primary corporate governance mechanisms to test hypothesis H9, which includes board size, board independence, and CEO duality as in [Chen et al. \(2012\)](#). The variables are discussed in detail in [Appendix 1](#).

4. Empirical results

The study used panel data analysis to test hypotheses H1 to H9. This methodology has the advantage of being able to take in to account the individual characteristics of each firm. This model has a balanced panel, in that it enables the observation of all the individual units in all the time period. The study performed random-effect and fixed-effect model. In this stage to choose a most appropriate method, the model is subjected to a Hausman test. This tests the null hypothesis that the individual effects are random and the alternative hypothesis is that the fixed-effect model is appropriate. A significant Hausman test shows whether a fixed-effect model is appropriate for the estimation. If substantial complications arise while estimating a fixed-effect regression specification, it cannot be used to investigate time invariant causes of dependent variables. To obtain a heteroscedasticity robust standard error, the study used a white estimator. The study also needs to determine whether the dependent variable is correlated with the error term even if we assume that the disturbances are not themselves auto-correlated. Dynamic panel GMM (Generalized Method of Moment), developed by [Arellano and Bond \(1991\)](#), solves the problem mentioned above.

4.1. Descriptive statistics

Table 2 provides descriptive statistics on the characteristics of sample observation. The study shows that the average sales revenue for our sample firms has 10,819 million Rupees and median of 6042 million Rupees and 1822 million Rupees in SG&A cost with the median of 864.85 million Rupees. The average value of SG&A costs as a percentage of sales revenue is 18%, and the median is 14%. This result evidenced the importance of SG&A cost in this context. The high standard deviation shows that the sample firms in this study are highly heterogeneous.

Descriptive statistics of economic variables shows that on average the sample firm uses 1.44 with the median of 0.34 employees' ratio

Table 2
Descriptive statistics.

Variable	Mean	Median	Std. Dev
<i>Panel A: Revenue and SG&A costs</i>			
Sales revenue(mil)	10,819.2	6042.0	17,467.1
SG&A costs(mil)	1822.4	864.8	5857.8
SG&A as % of sales revenue	17.7	14.1	19.9
<i>Panel B: Economic variables</i>			
Employee intensity	1.44	0.34	5.41
Asset intensity	1.77	1.12	3.35
Successive decrease (indicator)	0.00	0.00	0.005
Stock performance	0.35	0.32	3.77
<i>Panel C: Agency variables</i>			
Free cash flow(FCF)	0.10	0.93	0.16
Fixed pay	0.05	0.03	0.08
Tenure	10.90	11.00	4.77
<i>Panel D: Corporate governance variables</i>			
Board size	9.18	9.00	3.34
CEO duality	0.66	1.00	0.50
Board independence	52.72	50.00	17.68

and 1.77 million with a median of 1.12 of assets to back each million Rupees in sales revenue. Compared to developed countries Indian companies used more assets to supports its sales than employees. The descriptive statistics of agency variables shows that free cash flow accounts for 10% of total assets with a median of 0.93. Out of 16 years' service, the average service period of CEO in our sample firms is ten years with the median of 11. The observation comes from years of CEO change or immediately preceding CEO changes is only 8%. On average salary and bonus constitutes, 5% of total compensation for our sample firms. The median board size in our sample firms consists of 9 members. On an average 66% of companies be made up of separate CEO and chairman. On an average 53% of the board members are outsiders indicating strong board independence.

The result explained sample firms generated substantial FCF to fund all projects that have positive NPV. Half of the firms have not experienced any CEO change during these periods. Salary and bonus account for CEO compensation is very less in Indian firms compared to developed countries.

The correlation statistics displayed in **Table 3** shows the correlation between CEO tenure and board independence have a highest negative correlation of -0.50 in Pearson correlation and for the same variables in Spearman correlation shows highest negative correlation of -0.68 . The correlation between FCF and horizon shows high positive correlation of 0.33 in Pearson, and the correlation between fixed pay and tenure shows high positive 0.29 correlation in Spearman correlation. The correlation between other independent variables are below the above-mentioned correlation and hence small in magnitude. This suggests that multicollinearity is not a problem in fitting a regression model.

4.2. Empirical test of stickiness in SG&A cost

The study presents empirical evidence based on above-mentioned hypothesis. Firstly the study examined hypotheses H1 to H4, to test the manager's role in resource adjustment decision and also to test the effect of expectations on future sales on SG&A cost behavior. After that, it focused on managerial empire-building behavior by testing hypotheses H5 to H8. Next, the study examined the role of corporate governance in manager's empire-building behavior, by testing the hypothesis H9. Finally, the study conducted additional analysis for more solid support of the result.

Table 3
Spearman and Pearson correlation matrix.

Variable	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
V1: Sales ratio	1.000	-0.062 (0.001)	-0.117 (0.000)	-0.015 (0.431)	0.011 (0.551)	0.025 (0.190)	0.040 (0.037)	0.001 (0.956)	0.065 (0.001)	-0.006 (0.752)	-0.016 (0.417)
V2: Employee intensity	-0.085 (0.000)	1.000	0.280 (0.000)	0.005 (0.775)	-0.073 (0.000)	-0.203 (0.000)	-0.041 (0.033)	0.085 (0.000)	0.021 (0.272)	0.036 (0.064)	-0.087 (0.000)
V3: Asset intensity	-0.106 (0.000)	0.207 (0.000)	1.000	0.007 (0.714)	-0.037 (0.052)	0.096 (0.000)	0.019 (0.3029)	-0.021 (0.270)	0.051 (0.008)	-0.121 (0.000)	0.048 (0.012)
V4: Successive decrease	-0.030 (0.118)	0.037 (0.057)	0.010 (0.620)	1.000	-0.003 (0.878)	0.038 (0.050)	-0.007 (0.702)	0.024 (0.210)	0.006 (0.747)	-0.036 (0.062)	0.003 (0.893)
V5: Stock performance	0.061 (0.002)	-0.070 (0.000)	-0.023 (0.227)	0.008 (0.695)	1.000	0.064 (0.001)	0.003 (0.867)	-0.015 (0.431)	0.026 (0.178)	0.015 (0.443)	0.031 (0.112)
V6: Free cash flow	0.200 (0.298)	-0.279 (0.000)	-0.111 (0.000)	0.054 (0.005)	0.081 (0.000)	1.000	0.0033 (0.089)	-0.101 (0.000)	-0.112 (0.000)	-0.097 (0.000)	0.057 (0.003)
V7: Horizon	0.032 (0.093)	-0.041 (0.033)	0.014 (0.455)	-0.004 (0.853)	0.005 (0.805)	0.057 (0.003)	1.000	-0.410 (0.000)	-0.095 (0.000)	-0.029 (0.134)	0.170 (0.000)
V8: Tenure	0.025 (0.191)	0.123 (0.000)	0.003 (0.870)	0.028 (0.144)	-0.014 (0.452)	-0.114 (0.000)	-0.381 (0.000)	1.000	0.274 (0.000)	0.066 (0.001)	-0.503 (0.000)
V9: Fixed pay	0.090 (0.000)	-0.006 (0.758)	0.064 (0.001)	0.015 (0.437)	0.028 (0.146)	-0.041 (0.031)	-0.095 (0.000)	0.292 (0.000)	1.000	-0.003 (0.862)	-0.129 (0.000)
V10: Governance factor 1	-0.009 (0.634)	0.039 (0.044)	-0.121 (0.000)	0.027 (0.161)	0.015 (0.439)	-0.131 (0.000)	-0.029 (0.134)	0.057 (0.003)	-0.023 (0.235)	1.000	-0.065 (0.001)
V11: Governance factor 2	-0.028 (0.147)	-0.125 (0.000)	0.038 (0.047)	0.003 (0.876)	0.029 (0.124)	-0.166 (0.089)	0.205 (0.000)	-0.688 (0.000)	-0.193 (0.000)	-0.067 (0.001)	1.000

The upper diagonal of the table shows Pearson correlation and lower diagonal shows Spearman correlation between independent variables. Significance levels are shown below each coefficient in parentheses.

4.3. Regression analysis

The study estimated both random and fixed effect model. To decide between fixed effect and random effect model, the study performed Hausman test. See Appendix 2 for the result of Hausman test.

The study estimates the following fixed effect regression specification model (1) to examine the degree of SG&A cost asymmetry due to the changes in sales revenue:

$$\begin{aligned} \log[SG\&A_{i,t}/SG\&A_{i,t-1}] = & \beta_0 + \beta_1 \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & + \beta_2 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & + \beta_3 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & * \log[Employees_{i,t}/SalesRevenue_{i,t}] + \beta_4 * Decrease_Dummy_{i,t} \\ & * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] * \log[Assets_{i,t}/SalesRevenue_{i,t}] \\ & + \beta_5 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & * [Successive_Decrease_{i,t}] + \beta_6 * Decrease_Dummy_{i,t} \\ & * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] * \log[Stock_Return_{i,t}] + \beta_7 \\ & * \log[Employees_{i,t}/SalesRevenue_{i,t}] + \beta_8 * \log[Assets_{i,t}/SalesRevenue_{i,t}] \\ & + \beta_9 * [Successive_Decrease_{i,t}] + \beta_{10} * [Stock_Return_{i,t}] + \epsilon_{i,t} \end{aligned} \tag{1}$$

where

SG&A_{i,t} is selling, general and administrative costs for the firm i at year t,

SG&A_{i,t-1} is selling, general and administrative costs for the firm i at year t - 1,

SalesRevenue_{i,t} is sales revenue for firm i at year t,

SalesRevenue_{i,t-1}

is sales revenue for firm i at year t - 1,

Decrease_Dummy_{i,t} is a dummy variable with a value of 1 when sales revenue declines, otherwise 0,

Employees_{i,t} is total number of employees for firm i at year t,

Assets_{i,t} is total assets for firm i at year t,

Successive_Decrease_{i,t} is a dummy variable with a value of 1 when sales revenue for firm i in year t - 1 is less than the sales revenue for firm i at year t - 2, otherwise 0,

Stock_Return_{i,t} is stock return for firm i at year t.

Model (1) is based on prior cost-stickiness studies of Anderson et al. (2003) and Banker et al. (2011). Asset intensity (Assets_{i,t}/SalesRevenue_{i,t}) and employee intensity (Employees_{i,t}/SalesRevenue_{i,t}) were used as proxies for resource adjustment decisions by managers. Successive decrease and stock performance indicate the signal of managerial expectations about future earnings.

SG&A cost and sales revenue are calculated as the ratio of current SG&A costs and sales revenue divided by previous years SG&A costs and sales revenue and transform and then the variables are transformed into log value. We also include Decrease Dummy variable in all regression models.

Coefficient β₁ measures the percentage increase in SG&A cost with a 1% increase in sales revenue. On the other hand, the value of decrease dummy is one when sales revenue decline, the coefficient (β₁ + β₂) measures the percentage decrease in SG&A costs with a 1% decrease in sales revenue. If upward and downward adjustment cost will be equal, β₂ would be equal to zero and β₁ would be equal to one. This result indicates traditional cost behavior is valid, that is, variable costs are assumed to change proportionately with the level of activity. A negative for β₁ (β₁ < 0) indicates that cost increases more when activity increases and a positive value for β₂ (β₂ > 0) indicates, cost decreases more when activity declines.

A significantly positive coefficient β₁ and a significantly negative coefficient β₂ would be consistent with cost stickiness (Anderson et al., 2003). Significantly positive coefficients β₁ and β₂ would be consistent with anti-stickiness of SG&A cost, as argued by Banker et al. (2011). The reported t-statistics are based on the white's heteroscedasticity corrected standard errors.

Table 4 presents the results of estimated fixed effect regression specification model (1). The estimated value of positively significant sales revenue (β₁ = 0.54, t-statistic = 10.31) indicates that SG&A costs increased 54% for 1% increases in sales revenues. The estimated value of positively significant decrease dummy sales revenue (β₂ = 0.23, t-statistic = 1.80) shows a signal of SG&A cost asymmetry. The combined coefficient (β₁ + β₂) = 77% indicates that SG&A costs decreased by 77% per 1% decrease in sales revenue. This result exhibited the anti-sticky behavior of SG&A cost, that is, SG&A cost increases to a lesser extent for a percent increase in sales revenue (54%), than it decline for a 1% decrease in sales revenue (77%).

The result shows the behavior of SG&A cost is not proportional to sales. Accordingly the above result supports the anti-sticky behavior

Table 4
Regression results of changes in SG&A cost on changes in sales revenue for period 1997–2012.

Variable	Pred. sign	Coefficient	t-Statistic
Sales change	+	0.54	10.31***
Dec dummy * Sales change	+	0.23	1.80**
<i>Interaction terms: (Variable * Dec. dummy * Sales change)</i>			
Employee Intensity	+	0.12	0.86
Asset Intensity	+	0.31	2.15**
Successive decrease	+	0.72	0.45
Stock performance	+	0.02	1.26
<i>Standalone variables</i>			
Employee intensity	–	0.05	9.90***
Asset intensity	–	–0.04	–2.20**
Successive decrease	–	–0.73	–1.70*
Stock performance	–	0.00	0.50
N		2720	
Adjusted R square		27%	

***, **, and * indicate significance at 1%, 5%, and 10% respectively.

of SG&A cost. The result provides support for hypothesis H1, that is, SG&A cost behaves asymmetrically. Positively significant asset intensity ($\beta_3 = 0.31$, t-statistic = 2.15) in the interaction term support the anti-sticky behavior of SG&A cost. This result accepts hypothesis H4, that is, SG&A cost asymmetry is positively associated with asset intensity. The estimated model (1) has not addressed the endogeneity problem in regression estimation. Endogeneity problem may arise, when some independent variables may be correlated with the past and current values of the error term ϵ_{it} in the model (1). Since the dependent variable $SG\&A_{i,t-1}$ is a function of ϵ_{it} in estimation model (1), $SG\&A_{i,t-1}$ is also a function of ϵ_{it} . Therefore, the dependent variables in the model (1) are correlated with the error term. For the fixed effect model the within transformation wipes out the ϵ_{it} but $SG\&A_{i,t-1}$ still can be correlated with ϵ_{it} . An alternative transformation that wipes out the individual effects remove the above problem is the first difference transformation. The study employed a dynamic panel data GMM model with a lagged dependent variable to control for endogeneity problem.

Table 5 provides the results from the GMM estimation with first difference. The estimated value of positively significant sales revenue ($\beta_1 = 0.65$, t-statistic = 22.84) indicates that SG&A costs increased 65% for 1% increases in sales revenues. The estimated value of negatively significant coefficient ($\beta_2 = -0.84$, t-statistic = -8.96) provides strong evidence for SG&A cost stickiness. The combined value of $(\beta_1 + \beta_2) = -19\%$ indicates SG&A cost increases more (65%) for a 1% increases in sales revenue than it declines for a 1% decrease in sales revenue (-19%). This result shows that SG&A cost is not proportional to changes in sales revenue. The negatively significant coefficient of employee intensity (-0.37, t-statistic = -4.7) indicates, cost stickiness

Table 5
Generalized method of moments for SG&A cost asymmetry.

Variable	Pred. Sign	Coefficient	t-Statistic
Sales change	+	0.65	22.8***
Dec dummy * Sales change	–	–0.84	–8.9***
<i>Interaction terms: (Variable * Dec. dummy * Sales change)</i>			
Employee intensity	–	–0.37	–4.7***
Asset intensity	+	1.07	12.8***
Successive decrease	–	–3.34	–6.7***
Stock performance	+	–0.01	–0.78
<i>Standalone variables</i>			
Employee Intensity	+	0.009	2.15**
Asset Intensity	–	–0.03	–1.5*
Successive decrease	+	–0.74	1.53*
Stock performance	–	–0.01	–17.22***

***, **, and * indicate significance at 1%, 5%, and 10% respectively.

increases when the company has more employees to support its operations. The positively significant coefficient of asset intensity (1.07, t-statistic = 12.85) supports the anti-sticky behavior of SG&A cost. The reason is that, if long term contract does not exist, it is relatively easy to scale down purchased resources when demand drops. The results of employee intensity and asset intensity support hypotheses H3 and H4 that the degree of SG&A cost asymmetry increases with employee intensity and asset intensity of the company. The negatively significant coefficient of successive decrease (-3.34, t-statistic -6.73) indicates when that the firm experiencing negative demand shocks in two consecutive years leads to higher SG&A cost stickiness. This result does not support hypothesis H2, since managers are sufficiently optimistic about future sales the permanent decline in demand makes them expect an increase in sales in the future. The insignificant stock performance (-0.010, t-statistic-0.78) is not directly supporting the asymmetrical behavior of SG&A cost. Hence, the empirical evidence discussed above indicates that SG&A cost behaves asymmetrically due to the future expectation and resource adjustment decision by managers with the intention to maximize their welfare resulting in agency cost to the firm.

4.4. Managerial empire building behavior and SG&A cost stickiness

The study analyzed cost asymmetry in agency theory perspective. Agency theory analyzed cost asymmetry in the context of manager's empire-building incentives. The hypothesis predicts that the severity of empire-building behavior is positively associated with degree of SG&A cost stickiness after adjusting for economic determinants. Cost stickiness is more likely a replication of managerial empire-building behavior. The following regression specification model (2) is used to estimate the managerial empire-building behavior of managers:

$$\begin{aligned} \log[SG\&A_{i,t}/SG\&A_{i,t-1}] = & \beta_0 + \beta_1 \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & + \beta_2 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & + \beta_3 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & * \log[FCF_{i,t}] + \beta_4 * Decrease_Dummy_{i,t} \\ & * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] * \log[Fixed_Pay_{i,t}] \\ & + \beta_5 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & * [CEO_Tenure_{i,t}] + \beta_6 * Decrease_Dummy_{i,t} \\ & * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] * [CEO_Horizon_{i,t}] \\ & + \beta_7 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & * \log[Employees_{i,t}/SalesRevenue_{i,t}] \\ & + \beta_8 * Decrease_Dummy_{i,t} * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] \\ & * \log[Assets_{i,t}/SalesRevenue_{i,t}] + \beta_9 * Decrease_Dummy_{i,t} \\ & * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1}] * [Successive_Decrease_{i,t}] \\ & + \beta_{10} * Decrease_Dummy_{i,t} \\ & * \log[SalesRevenue_{i,t}/SalesRevenue_{i,t-1} * \log Stock_Return_{i,t}] \\ & + \beta_{11} \log[FCF_{i,t}] + \beta_{12} \log[Fixed_Pay_{i,t}] + \beta_{13} [CEO_Tenure_{i,t}] \\ & + \beta_{14} [CEO_Horizon_{i,t}] + \beta_{15} \log[Employees_{i,t}/SalesRevenue_{i,t}] \\ & + \beta_{16} \log[Assets_{i,t}/SalesRevenue_{i,t}] + \beta_{17} [Successive_Decrease_{i,t}] \\ & + \beta_{18} * [Stock_Return_{i,t}] + \epsilon_{i,t} \end{aligned} \tag{2}$$

where

- FCF is net cash flow from operating activities,
- Fixed_Pay_{i,t} is the ratio of salary plus bonus divided by total compensation for firm i during year t.
- CEO_Tenure_{i,t} is the number of years that the CEO has been in office for firm i at year t,

CEO_Horizon is a dummy variable with a value of 1 if there is a CEO change for firm *i* during year *t* or year *t* – 1, otherwise 0,

The negative coefficient for the interaction term β_2 in model (2) can be expressed as a function of the empire building behavior of managers. The significant result of Hausman test shows fixed effect model is appropriate for the estimation. See Appendix 2 for the result of Hausman test. Here we expand the model (1), to test the association between agency problem and cost asymmetry. To eliminate the endogeneity concern of variables, the study conducted dynamic panel data GMM method mentioned above.

Table 6 presents the result of regression estimation of the model (2), with the interaction of agency and economic determinants. As in the first outcome the degree of SG&A cost stickiness and anti-stickiness increases (decreases) in the magnitude of the negative (positive) value of agency and economic coefficients. Similar to the first estimation we find a significantly positive coefficient of sales revenue ($\beta_1 = 0.44$, *t*-statistic = 9.94) in the estimation model (2). The inclusion of agency variables renders positive, but insignificant decrease in dummy sales revenue ($\beta_2 = 0.39$, *t*-statistic = 1.14), which indicates agency and economic variables incorporate the special effects of sales decline on SG&A costs changes. The result shows SG&A cost decreased 83% ($\beta_1 + \beta_2$) for a 1% decrease in sales revenue and increases only 44% for a 1% increase in sales revenue which is a signal of the anti-sticky behavior of SG&A cost. A significantly positive FCF (0.0001, *t*-statistic = 2.43) is related to SG&A anti-stickiness. This rejects the fifth hypothesis that FCF and SG&A cost stickiness is positively related. While, these two shows a positive relationship, the coefficient of FCF, (0.0001) shows the effect is not much significant. A significantly positive fixed pay ($\beta_4 = 0.25$, *t*-statistic = 2.00) indicates the percentage of fixed pay in CEO compensation increases the anti-sticky behavior of SG&A cost. This result supports hypothesis H8 that shows SG&A cost stickiness decreases when the firm uses more fixed pay in their compensation structure. A significantly positive coefficient of CEO horizon ($\beta_6 = 0.975$, *t*-statistic =

2.01) indicates SG&A anti-stickiness increases in the year of CEO change. This result is consistent with hypothesis H7. The coefficient of CEO tenure is insignificant in both estimations and does not provide direct support for SG&A cost behavior.

An alternative GMM estimation improves the significance level of economic determinants, indicating that anti-sticky behavior of SG&A cost is the product of resource adjustment decisions and future expectation of forward-looking managers. Here, successive decrease shows positively significant coefficient ($\beta_9 = 2.21$, *t*-statistic = 2.16) shows sales decrease in the previous period induce managers to reduce cost aggressively due to the pessimistic expectation of future sales, this is consistent with the second hypothesis. Overall the result provides evidence that the empire-building behavior of managers does not play an explicit role in the asymmetrical behavior of SG&A cost. However, managers' resource adjustment decision is motivated by agency consideration.

4.5. Corporate governance and agency variables

Hypothesis H8 predicts that SG&A cost stickiness is more pronounced in firms with weak corporate governance. The prior literature on corporate governance advises that different corporate governance mechanisms perform concurrently, so the study conducted principal component factor analysis with varimax rotation to reduce the dimensionality of governance variables. The governance variables were defined as follows:

CEO duality is an indicator variable that is equal to 1 if the CEO and the chairman of the board are not the same person and, 0 otherwise
 1.Board independence is the proportion of outside directors on the board,
 Board size is the total number of directors on the company board.

As Table 7 indicates, CEO duality loads on the first factor and percentage of independent directors' and board size load on the second factor. The sample firms divided into strong versus weak governance using the median value of each governance factor. The higher score on corporate governance variable indicates stronger governance and a lower score indicate weaker governance.

The study performed both random and fixed effects. The Hausman test shows insignificant *p*-values for both corporate governance mechanisms indicate that random effect is the appropriate model. Thus, in this estimation, the variation across firms is assumed to be random and uncorrelated with the independent variables.

Table 8 presents regression results from the estimation of the model (2) for strong versus weak governance subsamples. The result based on CEO/Chairman, separation shows the anti-sticky behavior of SG&A cost in strong governance subsample and SG&A cost stickiness in weak governance sample firms. In strong governance sample firms, the significantly positive coefficient of FCF (0.0002, *t*-statistic = 1.8) only has a significant effect on the anti-sticky behavior of SG&A cost and, all other agency variables shows an insignificant effect. On the contrary, the agency variables such as FCF (–4.32, *t*-statistic = –2.0), CEO tenure (0.08, *t*-statistic = 2.7) and CEO horizon (1.02, *t*-statistic = 2.0) have a significant effect in weak governance sample firms.

This result indicates that managers' empire-building behavior is more pronounced in weak governance sample firms compared to strong

Table 6
 Regression results of changes in SG&A costs on changes in sales revenue and agency and economic causes of cost stickiness.

Variable	Fixed effects			Generalized method of moment		
	Expected			Expected		
	Sign	Coeff.	t-Statistic	Sign	Coeff.	t-Statistic
Sales change	+	0.44	9.94***	+	0.62	17.90***
Dec dummy sales change	–	0.39	1.14	–	0.15	0.56
<i>Interaction terms (Variables * Dec. dummy * Sales change)</i>						
Free Cash flow	–	0.0001	2.43***	–	0.0002	5.63***
Fixed pay	+	0.253	2.00**	+	0.07	0.55
Tenure	–	0.019	0.297	–	–0.09	–6.21***
Horizon	+	0.975	2.01**	+	0.73	1.60*
Employee intensity	–	–0.03	1.04	–	–0.80	–7.88***
Asset intensity	–	0.118	1.02	–	0.96	7.2***
Successive decrease	+	1.490	1.18	+	2.11	2.16**
Stock performance	–	0.019	–1.52	–	–0.003	–0.15
<i>Standalone variables</i>						
Free cash flow		–5.08	–1.52		4.56	2.12**
Fixed pay		0.0025	0.20		–0.021	–2.09**
Tenure		–0.001	–0.56		–0.000	–0.65
Horizon		–0.0008	–0.04		0.010	1.34
Employee intensity		0.05	4.95***		0.004	0.66
Asset intensity		–0.05	–2.58***		–0.05	–2.02**
Successive decrease		–1.59	–2.11**		–0.76	–2.26**
Stock performance		–0.0005	–0.47		–0.011	–15.9***
N			2720			2380
Adjusted R square			20%			
Std. error						29%

***, **, and * indicate significance at 1%, 5%, and 10% respectively.

Table 7
 Principal components analysis of corporate governance measures.

Corporate governance Variables	Estimated factor loadings	
	Factor 1	Factor 2
Board size	0.21	–0.69
CEO duality	0.96	0.005
Board independence	0.19	0.72

Table 8
SG&A cost asymmetry for strong and weak governance subsamples.

Variable	Pred. sign	Strong governance	t-Stat.	Weak governance	t-Stat.	Pred. Sign	Strong governance	t-Stat.	Weak Governance	t-Stat.
Intercept		0.08	3.17*	0.066	2.4**		0.08	3.1*	-0.02	-0.49
Sales change	+	0.38	6.30*	0.64	5.98*	+	0.47	3.46*	0.6	6.24*
Dec dummy Sales change	-	0.65	1.09	-0.41	-0.49	-	0.07	0.09	-3.33	-1.9***
<i>Interaction terms</i>										
Free cash flow	-	0.0002	1.8***	-4.32	-2***	-	1.5	0.12	0.0001	1.12
Fixed pay	+	0.09	0.5	0.23	0.47	+	0.4	1.3	0.35	1.14
CEO tenure	-	0.02	0.92	0.08	2.7*	-	0.11	1.85***	0.24	2.33**
CEO horizon	+	0.70	1.2	1.02	2.0**	+	0.96	2.2**	-0.14	-2.86*
Employee intensity	-	0.35	2.36**	-0.22	-0.71	-	-0.08	-0.32	0.22	0.75
Asset intensity	-	0.38	1.9***	0.30	1.2	-	0.06	0.18	-0.5	-1.28
Successive decrease	+	0.68	0.34	-5.00	0.83	+	-32.10	-1.6	5.57	3.95*
Stock performance	-	0.021	0.9	0.026	0.73	-	0.04	1.01	-0.03	-0.96
<i>Standalone variables</i>										
Free cash flow		8.63	2.09**	0.0001	1.7**		-7.7	-3.3*	-3.12	-1.2
Fixed pay		0.004	0.45	0.0006	0.07		0.001	0.11	0.002	0.24
CEO tenure		0.0005	0.38	0.001	0.86		0.001	0.9	0.006	3.19*
CEO horizon		0.0004	0.02	-0.0002	-0.015		-0.001	0.93	0.14	4.80*
Employee intensity		0.016	1.80***	0.034	3.48*		0.02	2.7*	0.035	3.13*
Asset intensity		0.03	1.8	-0.020	-0.97		-0.01	-0.7	-0.044	-2.32**
Successive decrease		4.4	2.13**	-0.002	0.38		9.02	0.82	-0.67	-2.04**
Stock performance		0.0015	1.01	0.005	0.38		-0.0008	-0.53	0	-0.34
N		1365		1352			1711		1007	
Adjusted R ² square		12%		26%			22%		14%	

***, **, and * indicate significance at 1%, 5%, and 10% respectively.

governance sample firms. The result provides evidence that CEO/Chairman separation is an effective corporate governance mechanism to reduce the empire-building behavior of managers.

The result of strong board independence shows SG&A cost stickiness in weak governance sample firms and anti-stickiness in strong governance sample firms. The agency variables such as CEO tenure and CEO horizon are significant in both strong and weak governance sample firms. However, the significant effect of these two agency variables renders SG&A cost stickiness in weak governance sample firms. These primitives explain that manager's empire-building behavior induces SG&A cost stickiness, by making them delay the reduction of SG&A cost and more willing to increase SG&A cost when sales decrease. Also, the study finds that strong board independence reduces cost stickiness as a result of the agency problem.

The results suggest that corporate governance mechanisms such as CEO duality, board size, and board independence are effective mechanisms to reduce the empire-building behavior of managers. Overall the result supports hypothesis H9, that the relationship between agency problem and SG&A cost stickiness is stronger in firms with weaker corporate governance.

4.6. Additional analysis

The study conducted further analysis to check arguments of agency theory in prior studies. The agency problem affects managers' SG&A cost decisions that depend upon the changing future value creation potential of SG&A cost across firms, (Chen et al., 2012). The study examined this conjecture by separating the sample based on the industry-specific SG&A future value creation suggested by Banker et al. (2011). To obtain an estimate of SG&A future value for each firm the study estimated the following equation on industry basis, using panel data from 1997 to 2012. The sample partitioned as high-value creation subsample and low value creation subsample based on the industrial SG&A cost future value. If the SG&A future value is greater than or equal to median we call it as high value creation firm and when the future value is less than median we call it as low value creation subsample.

The following equation is estimated to find SG&A future value creation.

$$(OI/TA)_{i,t} = \beta_0 + \beta_1(1/TA)_{i,t-1} + \beta_{2k}(SG\&A/TA)_{i,t-k} + \epsilon_{it} \quad (3)$$

where

OI is operating income before depreciation and
TA is total assets.

The study deflates total assets to mitigate the possible heteroscedasticity problem. The study applied the instrumental variable approach using two-stage least squares (2SLS) regression to mitigate the simultaneity problem of SG&A cost. Further the study estimated Eq. (3) for each industry basis and assumed that SG&A future value is the same for firms within each industry.

The study also estimated whether financial crisis influences managers' decision on SG&A cost behavior. Therefore, the study divides the sample firms based on crisis period. The crisis period 2008 is taken as a base year and divides the sample as before crisis period, during, and after crisis periods. The regression equation model (2) is estimated for these two subdivisions.

Table 9 shows the estimated result of above-mentioned regression estimation in model (2). In the empirical result after crisis shows SG&A cost stickiness and before crisis shows anti-stickiness behavior of SG&A cost. The insignificant β_2 in both crisis periods indicates, agency and economic factors incorporate the effect of SG&A cost behavior according to sales change. Before crisis period shows significantly negative coefficient of FCF ($\beta_3 = -0.003$, t-statistic = -2.3) related to anti-sticky behavior of SG&A cost. This result indirectly supports the hypothesis H4, that SG&A cost stickiness is positively related to FCF. On the other hand, the significantly positive coefficient of CEO tenure ($\beta_4 = 0.53$, t-statistic = 2.15) indicates anti-stickiness of SG&A cost related to CEO tenure. Thus, the result is not consistent with hypothesis H6. The significantly positive CEO horizon ($\beta_5 = 0.84$, t-statistic = 2.30) support hypothesis H7, indicating SG&A cost stickiness decreases if there is a CEO change. The significant successive decrease ($\beta_9 = -65.2$, t-statistic = -8.74) and stock performance ($\beta_{10} =$

Table 9
Regression results of changes in SG&A cost on future value creation and financial crisis.

Variable	Before crisis period	t-Statistic	During & after crisis periods	t-Statistic	SG&A future value \geq median	t-Statistic	SG&A future value < median	t-Statistic
Sales Change	0.51	7.10***	0.55	12.3***	0.52	9.3***	0.63	9.8***
Dec Dummy Sales Change	0.21	0.49	-0.15	-0.43	1.49	2.5***	-1.47	-3.8***
Interaction terms (Variable * Dec. dummy + Sales change)								
Free cash flow	-0.003	-2.30**	0.00003	0.00003	0.0006	0.91	-0.0003	-2.4**
Fixed pay	0.26	1.3	-0.06	-0.50	0.43	2.4**	-0.37	1.80*
Tenure	0.53	2.15**	0.005	0.31	-0.06	-2.26**	0.088	4.2***
Horizon	1.07	1.7*	0.84	2.30**	0.61	0.76	0.94	1.93**
Employee intensity	-0.62	-4.20***	0.53	6.2***	-0.97	0.73	-0.34	-1.60*
Asset intensity	0.0183	2.60***	0.21	1.43	0.19	1.06	-0.02	-0.11
Successive decrease	-8.7	-3.30***	-65.20	-8.7***	2.24	1.37	-41.79	-3.20***
Stock performance	0.02	1.23	0.080	3.5***	0.03	1.24	0.03	1.06
Standalone variables								
Free cash flow	-1.9	-2.5**	6.7	0.38	-6.5700	-1.71*	-1.36	-0.32
Fixed pay	-0.007	-0.339	0.017	1.78*	-0.0008	-0.09	0.03	2.00**
Tenure	-0.005	-1.28	0.0007	0.34	0.0005	0.44	-0.001	0.47
Horizon	-0.008	-0.32	0.02	1.80**	0.010	0.05	0.001	0.07
Employee intensity	0.037	2.24**	0.014	1.01	0.020	2.80***	0.012	0.89
Asset intensity	-0.075	-2.4***	0.030	0.63	-0.015	-0.93	0.0016	0.07
Successive decrease	-0.23	-0.23	8.8	1.50	-1.840	-2.3**	10.10	2.3**
Stock performance	-1.2	-0.009	0.001	1.18	-0.002	-1.41	0.002	1.10
N	1867		850		1406		1311	
Adjusted R-squared	0.12		0.69		0.22		0.32	

***, **, and * indicate significance at 1%, 5%, and 10% respectively.

0.08, t-statistic = 3.55) during and after crisis period shows that the future expectation of managers play a significant role in SG&A cost asymmetry in these periods. Specifically, in these period managers expect sales to increase in subsequent years even after two consecutive decreases in sales. Thus, when the expectations for future are optimistic, managers are more hesitant to cut resources in response to sales decrease, leading to SG&A cost stickiness. Likewise, the crisis period may influence the capacity utilization of sample firms, so cutting too many resources reduces the future availability of resources in the organization. In contrast, before crisis period when managers are cutting too much resource when sales decrease, the capacity utilization may be very high in these periods compared to after crisis period. The results suggest that before and after crisis periods show asymmetrical behavior of SG&A cost, due to the resource adjustment decision by managers. The economic determinants show more significant effects of after crisis period indicating, the magnitude of managers' resources adjustment decision increases during these periods.

5. Conclusion

The study examined whether Indian companies document SG&A cost asymmetry and the role of managers discretion in explaining the SG&A cost behavior. Previous studies emphasized that SG&A cost asymmetry arises when SG&A cost increases more for one percentage increase in sales than it declines with one percent decrease in sales revenue. The estimated results of our study show, the behavior of SG&A cost is not proportional to activity. The manager's decision regarding the upward and downward adjustments of resources leads to SG&A cost stickiness and anti-stickiness in the Indian market. The resource adjustment decisions show higher stickiness when the expectations are optimistic, and less stickiness or anti-stickiness when the expectations are more pessimistic. Interaction of agency variables increases (stickiness) or decreases (anti-stickiness) SG&A cost behavior depending on the circumstances. The results of corporate governance subsample show the empire-building behavior of managers is more pronounced in weak governance subsample compared to strong governance subsample. The separation of CEO/Chairman and strong board independence increases better monitoring and oversight; likewise more independent directors on the board will reduce the deliberate resource adjustment decision by managers.

The findings of additional analysis show the asymmetrical behavior of SG&A cost in high and low-value creation firms. The anti-sticky behavior of cost is more pronounced in firm with high SG&A future value creation. On the contrary, the SG&A cost stickiness as a symptom of managers' empire-building behavior is more pronounced in low-value creation subsample. Even though, the SG&A cost creates lower future value the managers are reluctant to cut SG&A cost according to sales decrease, because of the empire-building behavior of managers. In during, and after crisis periods sample firms show SG&A cost stickiness, but before crisis period shows the anti-sticky behavior of SG&A cost. The economic determinants show more significant effects in during and after crisis periods which indicates, the magnitude of manager's resource adjustment decision is higher in this period. That managers are reluctant to cut resources in after crisis period is mainly because of the shortage of resources in this period and this situation increases the adjustment cost of replacing resources.

Finally, the result evidenced that the asymmetrical behavior of SG&A cost is mainly due to managers' resource adjustment decision rather than empire-building behavior. Thus, the SG&A cost asymmetry shows mixed evidence in Indian companies. The resource adjustment decision of managers and expectation about future sales play a vital role in the asymmetrical behavior of SG&A cost. When the expectation of future sales is more optimistic, managers' unwillingness to cut SG&A cost leads to cost stickiness. However, if managers are more pessimistic about future sales they are ready to reduce resources when sales decline which leads to SG&A anti-stickiness. The empire-building behavior induces managers to increase SG&A cost more when sales increase, and delay the reduction of SG&A cost when sales decrease. Specifically, the empire-building behavior of managers is more evidenced in companies with weak corporate governance. The empirical evidence of this study supports resource adjustment decision and empire-building behavior of managers which depends on the strength of corporate governance, financial conditions, and future value creation of business organizations in Indian financial markets.

Future research is expected to build on this approach while considering conservative accounting practices. Another interesting area is to test the effect of agency problem in family controlled business. This study combines the financial accounting and management accounting concept for addressing the issue raised by different financial accountants. This result will be helpful for analysts and practitioners to think about the behavior of cost and managerial role in adjusting cost.

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Appendix 1. Variables descriptions

Variable name	Type	Variable description
SG&A cost	Dependent	Annual selling and distribution expense + general and administrative cost (source from prowess)
Sales revenue	Independent	Annual net sales
Decrease dummy	Dummy	Dummy variable takes the value of one when current year sales revenue is lower than previous year sales revenue and zero otherwise.
<i>Control variables</i>		
FCF	Agency	Free cash flow is measured as net operating cash flow from activities.
CEO tenure	Agency	Number of years the CEO has been in office
CEO horizon	Agency	Indicator variables one if it is a year of CEO change or a year immediately preceding the CEO change and zero otherwise.
CEO fixed pay	Agency	CEO salary + bonus divided by total compensation (salary + bonus + commission + perquisites) during a year.
Employee intensity	Economic	Total number of employees divided by sales revenue
Asset intensity	Economic	Total assets divided by sales revenue
Successive decrease	Economic	Variable that takes the value of one if sales revenue in year t – 1 are less than the sales revenue of t – 2 and zero otherwise.
Stock performance	Economic	Raw stock return during the financial year.
Board independence	Corporate governance	Number of outside directors divided by total number of directors in the board.
Board size	Corporate governance	Total number of directors in the board.
CEO/Chairman separation	Corporate governance	Indicator variable equals one if the CEO and chairman of the board are not the same person and zero otherwise.

Appendix 2. Hausman test results

Correlated random effects – Hausman test				
Equation: Random cost asymmetry				
Test cross-section random effects				
Test summary	Chi-Sq. statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	37.71038	10	0.0000	
Cross-section random effects test comparisons				
Variable	Fixed	Random	Var (Diff.)	Prob.
Sales	0.446	0.504	0.0002	0.0002
Dec sales	0.263	0.175	0.0011	0.0100
Dec employee intensity	0.023	0.035	0.0004	0.5850
Dec asset intensity	0.330	0.346	0.0004	0.4730
Dec successive decrease	0.106	0.212	0.0726	0.6940
Dec stock	0.016	0.020	0.0000	0.2530
Employee intensity	0.053	0.028	0.0000	0.0000
Asset intensity	–0.049	–0.020	0.0002	0.0590
Successive decrease	–1.287	–0.980	0.0347	0.1030

The preferred model for the null hypothesis is random effects, and the preferred model for the null hypothesis is fixed effects. The significant result of the Hausman test shows fixed effect model is appropriate for the estimation.

Appendix 3. Hausman test results for agency variables

Correlated random effects – Hausman test				
Equation: Random cost asymmetry				
Test cross-section random effects				
Test summary	Chi-Sq. statistic	Chi-Sq.	Prob.	
Cross-section random	27.52	10	0.036	
Cross-section random effects test comparisons				
Variable	Fixed	Random	Var (Diff.)	Prob.
Sales	0.447	0.502	–0.055	0.017 0.00001 0.03965
Dec sales	0.385	0.372	0.013	0.099
Dec FCF	0.253	0.266	–0.012	0.039
Dec fixed pay	0.019	0.015	0.003	0
Dec tenure	0.974	0.905	0.069	0.006
Dec horizon	–0.033	–0.026	–0.006	0.152
Dec employ intensity	0.118	0.117	0.001	0.028
Dec asset intensity	1.488	1.619	–0.131	0.035
Dec successive decrease	0.197	0.023	–0.003	0.401
Dec stock	–5.1	–5.39	2.91	0.005
FCF	0.002	0.0003	0.002	2.03
Fixed pay	–0.001	0.0001	–0.001	0.01
Tenure	–0.008	–0.0006	0	0.001
Horizon	0.048	0.0241	0.024	0.005
Employ intensity	–0.05	–0.0172	–0.033	0.007
Asset intensity	–1.594	–1.3	–0.293	0.015
Successive decrease	–0.0004	–0.0008	0.0003	0.234

The preferred model for the null hypothesis is random effects, and the preferred model for the null hypothesis is fixed effects. The significant result of the Hausman test shows fixed effect model is appropriate for the estimation.

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