The Role of Managerial Ability on the Relation between SG&A Cost and Future Profitability*

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We examine whether managerial ability affects the relation between selling, general, and administrative costs (hereafter, SG&A costs) and future profitability. To operationalize our research question, we employ Baumgarten, Bonenkamp, and Homburg (2010)'s approach in differentiating an increase in the SG&A ratio as managers' deficient cost control (SG&A cost inefficient firms) versus deliberate investment on input resource (SG&A cost efficient firms), which is intended by the management to improve future performance. Using Korean listed firms from 2000 to 2014, we find that the positive association between changes in SG&A ratio and future operating performance appears only in SG&A cost efficient firms. More importantly, we find that the positive association between changes in SG&A ratio and future operating performance among SG&A-efficient firms is mainly driven by high ability managers. Our findings fill the void in Baumgarten et al. (2010) by providing the evidence that the positive association between an intentional increase in the SG&A ratio and future profitability can be partially explained by high managerial ability.

Key words: Managerial ability; SG&A Cost, Fundamental analysis, Cost efficiency

Ⅰ. Introduction

Recent papers on cost accounting indicate that increase in the ratio of SG&A cost can positively influence future firm performance (Banker et al. 2006; Anderson et al. 2007; Baumgarten et al. 2010; Banker et al. 2011). The intuition behind the findings of these papers is that SG&A spending can be considered as an investment in intangible assets (Lev and Radhakrishnan 2005; Banker et al. 2006; Banker et al. 2011; Peter and Taylor 2017). This is contrary to traditional

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perspective that SG&A spending is a cost and thus, less SG&A spending is better for firms' profits. The first view that SG&A spending is an investment, however, is getting more spotlighted as an economy has shifted to knowledge- and technology-based industries (Srivastava 2014). Hence, there is a call for examining whether and when the SG&A spending positively affects firm profits while facing two conflicting perspectives about the SG&A is spending.

Increase in the SG&A spending could be a failure of cost control or an investment in valuable resources, depending on context. Hence, it is a good approach to incorporate context, into our analysis, that clearly separates positive and negative aspects of the SG&A on firm profit for our research questions. In a similar vein, Anderson et al. (2007) find a positive relationship between changes in the SG&A costs and future profit in a period of sales decline. Baumgarten et al. (2010), however, use managers' intention in increasing the SG&A spending as the context. Increase in SG&A expense intended by managers could reflect effective investment in resources since managers would not deliberately spend more money if it was an ineffective operation. On the contrary, the unintended increase reflects that managers fail to control SG&A costs. Baumgarten et al. (2010) indeed find that an intended increase in SG&A enhances future operating income.

However, intentional increase in SG&A spending (i.e., intended investment in resources) does not necessarily result in positive profits. One of the missing links for the relation between an intended increase in SG&A cost and future performance is whether managers have an ability to control the investment via SG&A increase. Although the increase in SG&A is intended by managers, the investment through SG&A expenditure may lead to subsequent poor performance if the managers poorly manage the investment. For example, if managers are less able in selecting profitable R&D project, suitable marketing channel for their products and service, and hiring and retaining high ability employees, the investment through SG&A expenditure may not result in good performance. Therefore, extending Baumgarten et al. (2010), we examine whether the association between an intended increase in SG&A expense and future profits varies with managerial ability.

In order to identify whether an increase in the SG&A spending is intended by management, we follow the research methodology suggested by Baumgarten et al. (2010). They use the past efficiency in SG&A cost management to distinguish an intended increase and unintended increase in SG&A cost. If management has consistently kept SG&A costs under control in prior years but, has made a deliberate increase on SG&A costs in the current year then, such SG&A costs are deemed

to be an investment by management that would positively affect future firm performance. To identify a firm's past efficiency in SG&A cost management, the industry average of SG&A ratio in the previous year is used as in Baumgarten et al. (2010). Specifically, if the SG&A ratio is below the prior year's industry average (i.e., for a SG&A cost-efficient firm in the prior year), a current year's increase in SG&A ratio is considered as managers' intention to invest in input resources. However, if the SG&A ratio is above the prior year's industry average (i.e., for a SG&A cost-inefficient firm in the prior year), a current year's increase in SG&A ratio can be interpreted as managers' loss of cost control. We use Korean Standard Industrial Classification (KSIC) two-digit code to calculate the industry average of the SG&A ratio. Although we acknowledge the fact that cost efficiency concept might vary widely from firm to firm, using industry average as a benchmark would remove systematic differences in SG&A ratio that are due to industry-specific characteristics.[1)]

Using Korean companies listed on Korean Stock Exchange (KSE) from 2000 to 2014, we find that the positive association between SG&A ratio and future operating performance appears only in SG&A cost-efficient firms in the prior year, consistent with Baumgarten et al. (2010). This result indicates that the positive impact of SG&A investments also appears among Korean listed firms. More importantly, we expand the research by applying managerial ability since we believe that management is the key decision maker in cost decision and the capability of managers in converting SG&A costs to performance is importantly associated with the consequence of SG&A increases. We find that the positive association between changes in SG&A ratio and future operating performance among SG&A-efficient firms in the prior year is mainly driven by managers with high ability.

There are several contributions of this paper. First, the findings of this paper fill the void in Baumgarten et al. (2010), incorporating managerial ability as a link between the intended increase in SG&A spending and improvement of future profits. Baumgarten et al. (2010) implicitly assume that if managers have the intention to invest SG&A expense, then the investment leads to future benefits. However, low ability managers have a poor understanding of firms' operation and marketing or R&D investment opportunity, and therefore, would "wrongly" increase SG&A expense. In this case, an increase in SG&A expense would not result in high future profits even if it is an intentional increase. We

1) Firms in the same industry tend to have similar technologies and business structures for converting inputs (e.g. SG&A costs) into outputs (e.g. sales revenue) (Demerjian et al. 2012) thus, we use industry average SG&A ratio to identify cost efficient and cost inefficient firms in comparison to their competitors within an industry.

contribute the literature, showing that managerial ability is one of the links that can explain the positive association between an intentional increase in SG&A and future profits. Second, this paper directly tests the role of managerial ability on firm performance through SG&A spending. Prior studies show that managerial ability enhances firm performance through various channels such as innovation, high-quality reporting, and so on. However, there is no paper that directly tests the effect of managerial ability on firm performance through cost decision, but just research that examines the effect of ability on cost behavior (Choi et al. 2017). However, this paper extends the research by directly showing firms with high ability managers generate superior future performance by SG&A spending.

The remainder of this paper is constructed as follows. Section II discusses prior studies and hypotheses development. We describe our research design and sample in Section III. Section IV reports our empirical results, and Section V concludes.

II. Prior Literature and Hypotheses Development

2.1 Impact of SG&A costs on firm performance

There are two conflicting views about the SG&A spending: the one that considers the SG&A spending as costs and the other that view it as an investment. The SG&A spending has long been considered as costs in traditional literature. It considers a SG&A ratio (i.e., a ratio of SG&A expense to sales) as a proxy for operating efficiency; the lower the SG&A cost ratio is, the more efficiently a business is operated. From a traditional perspective, escalation of the SG&A expenditures implies that managers fail to control the costs at an efficient level and reduction of the SG&A expense is desirable for increasing firm value. Hence, this stream of research has focused on the negative effect of SG&A expense on firm performance.[2] Relying on this argument, Lev and Thiagarajan (1993) find that an increase in SG&A ratio has a negative effect on future performance.[3]

2) Inefficient cost management adversely affects firms' profit since income is equal to revenue minus cost. Also, traditional literature suggests that the increase in SG&A costs negatively affects future profits since cost management behavior is likely to persist in future periods.

3) Someone may cast a doubt that changes in SG&A ratio really reflect cost management decision. If profitability is defined as $(Revenue_t - SG\&A_t)/Revenue_t$, then "the changes in SG&A ratio" can be rearranged as the following: $SGA_t/Rev_t - SGA_{t-1}/Rev_{t-1} = -1 + SGA_t/Rev_t - SGA_{t-1}/Rev_{t-1} + 1 = -\{(Rev_t - SGA_t)/Rev_t - (Rev_{t-1} - SGA_{t-1})/Rev_{t-1}\}$. So, this rearrangement shows that the change in SG&A ratio is a negative change in profitability: reflecting managers' cost reduction and effort to generate more revenue. However, based on the argument of the investment view. SG&A expense can be a "positive" of change in profitability. For example, Lev and Sougiannis (1996) show that among SG&A items,

However, as the economic structure has evolved toward knowledge- and technology-focused structure (Srivastava 2014), the other view that considers SG&A spending as an investment in intangible assets has emerged. The SG&A expenditures mainly consist of following expense items: R&D expense, advertising and marketing expense, and labor expense not related to production (e.g., white-collar compensation, education, and training expense). First of all, R&D projects create innovation that is one of the key value drivers in a firm. Firms indeed experience significant improvement in their accounting and market performance following their R&D spending (Sougiannis 1994; Lev and Sougiannis 1996; Eberhart et al. 2004). Hence, R&D expenditure produces the potential for future profit. In addition, the advertising activity builds a brand in a customer market (Simon and Sullivan 1993; Wyatt 2008), driving positive association between advertising spending and brand value (Barth et al. 1998). In addition, prior literature shows that brand equity positively affects operating and market performance in the future (Aaker and Jacobson 2001; Eng and Keh 2007). Hence, advertising spending eventually increases sales and profits. Also, expense related to labor input can improve employees' motivation and foster their capability, creating human capital (Lev and Radhakrishnan 2005). Hence, SG&A expenditures are used as a proxy of intangible capital that eventually increases future performance (Ittner and Larcker 1998; Banker et al. 2006; Banker et al. 2011; Eisfeldt and Papanikolaou 2013; Peters and Taylor 2017). In this regard, an increase in the SG&A imply an expansion of investment and therefore is expected to generate positive future profits. Consistent with this prediction, Banker et al. (2006) show that a creation of intangible assets driven by the SG&A spendings induces the positive impact of the SG&A costs on future operating income.

This perspective is also in line with studies on cost stickiness. Anderson et al. (2003) show evidence that managers decrease SG&A costs less in response to sales decrease than they increase the SG&A costs in response to the sales increase, and call this phenomenon the cost stickiness. They explain that, in a case of a temporary decrease in sales, quickly reducing resources in a current period and restoring resources in response to a recovery of demand in a subsequent period incur more costs in terms of both implicit and explicit costs than maintaining resources, and therefore would adversely affect future earnings. According to their argument, managers con-

R&D expenditure is positively associated with future profit. Anderson et al. (2007) also find the positive association between future earnings and changes in SG&A costs when revenue declines. Baumgarten et al. (2010) argue that an "intended" increase in the ratio of SG&A costs to sales can enhance future profitability.

sider the SG&A stickiness as an investment of valuable assets for future demand rebound. Hence, the perspective of the cost stickiness lies on the same line with the second view. Building on the evidence of cost stickiness, Anderson et al. (2007) and Hong and Cheung (2015) examine whether increasing SG&A expense in a situation of sales-decline brings about the positive impact on future profits and show findings consistent with their prediction.

In summary, the SG&A overspending is undesirable in terms of operating efficiency, but the SG&A spending in terms of intangible investment is getting spotlighted in a new economy. In a sense that investment is essential for value creation, the SG&A spending is encouraged. Hence, considering the growing importance of the investment for intangible capital, but facing conflicting views, we need to more elaborately examine whether the SG&A spending positively affects firms performance.

Depending upon the context, however, increase in the SG&A spending can be an investment in valuable resources that give a positive effect on firm profit or loss of control over the costs. The literature on a fundamental analysis suggests that conditioning the analysis of contextual variables can provide non-mixed results when a signal is subject to conflicting interpretations (Lev and Thiagarajan 1993). Following their suggestion, Abarbanell and Bushee (1997) indeed find that changes in the SG&A ratio have no relation with the changes in future earnings in an unconditioned mode, but significantly negative relation in periods of low GDP. Anderson et al. (2007) find a positive association between changes in the SG&A costs and one-year-ahead profit but in a specific situation; in a period of sales decline. However, there could be context variables other than macroeconomic variables and sales variables that clearly separate the positive and negative effect of the SG&A spending on firm profit.

For that, we incorporate managers' intention as suggested in Baumgarten et al. (2010). Baumgarten et al. (2010) distinguish an increase of the SG&A ratio into two categories: an increase that occurs intentionally by managers and an increase that occurs unintentionally. They interpret that the intentional increase of the SG&A ratio reflects effective resource investment since managers would not deliberately increase the SG&A spending if it was an ineffective operation.[4] That is, intended increases in the SG&A expense may reflect

4) This interpretation has an underlying assumption that agents behave in a way consistent with principals' interest. However, it is possible that CEOs intentionally spend more SG&A expenditures for building their empire. According to the empire building literature, managers have the incentive to grow their firm beyond their optimal size for their private benefit. Williamson (1963) specifically focuses on the expansion of staff and use SG&A costs as a proxy for the size of an organization since white-collar wages are one component of SG&A costs. In a similar vein, Chen, Lu, and Sougiannis (2012) also show that firms with agency problems have a higher degree of SG&A cost asymmetry. However, most of the

managers' expectation that current increase in the SG&A spending is the investment in resource input and therefore would result in a good performance in the future. Consequently, the intentional increase would show a positive impact on future performance. On the other hand, the unintentional increase can be interpreted as a loss of cost control and negatively affect future profits. Following the above reasoning, Baumgarten et al. (2010) hypothesize and find the positive relationship between intentional increases in the SG&A and future profit of companies listed in the U.S. stock market. However, it is not clear whether we can observe such positive relationship in a Korean setting. Korea has relatively strict regulatory environment that companies must adhere to for their business operation.[5] For example, the number of regulations applied to businesses increased 200.5% from 7,294 in 1999 to 15,007 in 2013 (Yoo 2013). Return on the investment in intangible resources could depend on the institutional background (Lee 2011). Inefficient and less-flexible regulatory environment would prevent the process through which the investment in the intangible resources is converted to profits. Hence, it is also possible that the intentional increase in the SG&A spending is not linked to profit increase in Korea. We re-examine the positive association in a Korean setting, similar to Baumgarten et al. (2010). Our focus is on the context in which the SG&A spending has a positive impact on firm performance. Hence, we develop our first hypothesis as follows.[6]

H1: The association between the increase in the SG&A cost and increase in future profit is positive when the SG&A cost is intentionally increased.

papers on the empire-building incentive focus on M&A activities, believing that SG&A costs represent just small portion of managers' expansion incentive. Moreover, Kama and Weiss (2013), as opposed to Chen et al. (2012), find that managers expedite the SG&A reduction when they have incentives to meet earning target. Hence, the argument that managers' pursuance for private benefits leads to intentional increases in SG&A costs is not that strong. However, we still cannot ignore the possibility that managers' intentional increase in SG&A activities comes from their rent-seeking behavior. In order to control for this possibility, we additionally control for corporate governance variables in additional tests.

5) While there are arguments that inefficient and less-flexible regulatory environment prevents companies from making innovation in Korea, the Korean government recently makes attempt to form a regulation-free zone for business. However, Korea is still categorized as a country that has regulatory environments that are not friendly to corporations.

6) Hong and Cheung (2015) are similar to our paper in that they also examine whether SG&A spending positively affects future performance. However, they incorporate sales-decline as a context variable while the context used in our study is managers' intention. More specifically, Hong and Cheung (2015) investigate whether SG&A increase in a sales-decline period results in positive future profits. According to Lev and Thiagarajan (1993), there could be various contexts that influence the impact of accounting signals on future performance. Hence, this paper contributes to the literature on the positive impact of SG&A spending on future performance by adopting a new context other than sales-decline.

2.2 Managerial ability and impact of SG&A costs on firm performance

An intended increase in the SG&A expenditures, however, does not necessarily result in an improvement of firms' performance. Even if managers deliberately raise SG&A ratio with an expectation of good performance, consequences of such investments can vary depending on various factors. However, Baumgarten et al. (2010) assume that intentionally increased SG&A spendings always enhance firms' performance. We incorporate managerial ability argument for more elaborate examination of the impact of the SG&A costs on firm profitability.

A CEO is at the top of decision-making hierarchy of a company and in charge of strategic decision-making or operation planning throughout the entire firm (Bertrand and Schoar 2003). Therefore, outcomes of such decision-making are largely affected by CEOs' ability. High ability managers have deeper understandings about their business and the industry, combine corporate information into reliable forward-looking estimates, efficiently allocate firms resources, and therefore generate better outcomes. Prior literature shows that managerial ability is positively associated with subsequent firm performance (Demerjian et al. 2012, Cheung et al. 2017), corporate innovation (Chen et al. 2015), M&A quality (Gan 2015), CSR activities (Chatjuthamard et al. 2016), corporate reporting quality (Baik et al. 2011; Demerjianet al. 2013; Baik et al. 2017).[7] Likewise, managerial ability can significantly affect corporate outcomes in various ways. Especially, regarding the effect of managerial ability on outcomes related to the SG&A spending, able managers have the ability to select profitable R&D project or to figure out which advertising channel is more suitable for their product or service. Hence, the positive relation between SG&A spending and firms' profit is more pronounced for firms with high ability managers than with low ability managers.

In the prior literature on cost stickiness, managers make deliberate resource adjustment decisions, considering the adjustment costs and the value of slack resources when sales decreases. Using the framework of cost stickiness, Choi et al. (2017) examine the effect of managerial ability on cost structure and find that firms with high ability managers exhibit greater cost stickiness. It implies that more ability managers understand the adjustment costs around resource planning

7) Krishnan and Wang (2014) extent to see the effect of managerial ability in auditing area and Bonsall et al. (2017) find that credit rating agencies also take managerial ability into account in their assessments risk. Their findings indicate that stakeholders outside a firm perceive managerial ability as a significantly important resource in operating a firm's business.

and exploit the value of slack resources better than less competent managers. Choi et al. (2017) *implicitly* assume that the slack consequently generates high performance, but do not directly show that retaining slack resources results in high future performance.

Overall, able CEOs have a better understanding of firms' cost allocation desirable to corporate goal and business and know how to efficiently deal with such allocated costs in order to improve firm performance. Thus, they generate greater profit from such intentionally increased SG&A expenditures. Even if managers deliberately raise SG&A ratio, incompetent managers are less likely to induce positive consequences from such SG&A investment.[8] Hence, we develop our second hypothesis as follows, extending Baumgarten et al. (2010).

H2: The positive association between the intentional increase in the SG&A cost and increase in future profit is observed only when managerial ability is high.

Ⅲ. Research Design

3.1 Model Specification

To investigate whether managers' intentional investment in SG&A costs (i.e., SG&A cost-efficient firms) leads to increased future profitability, we use the following earnings forecast model as suggested by Baumgarten et al. (2010). We include year and industry or firm fixed effects to control for unobserved factors and, the standard errors are clustered at the firm level to adjust for serial correlation within a firm (Petersen 2009).

$$\begin{aligned} chg\_EPS_{i,t+1} = {} & \alpha + \beta_1\, chg\_EPS_{i,t} \\ & + \beta_2\, SGA\_Ratio\_low_{i,t} \\ & + \beta_3\, SGA\_Ratio\_high_{i,t} \\ & + \beta_4\, DSalesIncr_{i,t} + \beta_5\, DSGA\_low_{i,t} \\ & + \beta_6\, chg\_INV_{i,t} + \beta_7 chg\_AR_{i,t} \\ & + \beta_8\, chg\_CAPEX_{i,t} + \beta_9\, chg\_GM_{i,t} \\ & + \beta_{10}\, chg\_LABOR_{i,t} + \beta_{11}\, chg\_LEV_{i,t} \\ & + \beta_{12}\, chg\_SalesGrowth_{i,t} \\ & + Year\ Fixed\ Effects \\ & + Industry(or\ Firm)\ Fixed\ Effects \\ & + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where,

8) Our paper is distinct from Choi et al. (2017). First, Choi et al. (2017) show that firms with able managers show more cost stickiness, but just *assume* that resource retention by able managers in a sales-decline period would generate better performance in the future. However, our paper directly examines whether a deliberate increase in SG&A spending by able managers would indeed generate positive future profits.

$chg\_EPS_{i,t+1}$ = changes in operating earnings per share scaled by stock price at the beginning of the year (i.e. $(EPS_{i,t+1} - EPS_{i,t})/P_{i,t-1}$)[9),10)]; *EPS* is computed as operating earnings are divided by the number of shares outstanding where operating earnings is defined as sales revenue minus cost of goods sold and SG&A expenses;

$SGA\_Ratio\_low_{i,t}$ = changes in SG&A ratio (i.e. $(SGA_{it}/Sales_{it}) - (SGA_{it-1}/Sales_{it-1})$) if the firm-specific SG&A ratio is below or equal to the industry average in the previous period or 0 otherwise;

$SGA\_Ratio\_high_{i,t}$ = changes in SG&A ratio (i.e. $(SGA_{it}/Sales_{it}) - (SGA_{it-1}/Sales_{it-1})$) if the firm-specific SG&A ratio is above the industry average in the previous period or 0 otherwise.

The main variables of our interest are $SGA\_Ratio\_low_{i,t}$ and SGA_Ratio_high.[11)] Baumgarten et al. (2010) have introduced an approach to distinguish whether an increase in the SG&A ratio is *intended* to enhance future profitability or not. They differentiate intentional and unintentional increase in current SG&A ratio by utilizing the past relationship between the individual SG&A ratio and its industry mean as a proxy for the quality of the firm's SG&A cost management.[12)] If management has consistently kept SG&A costs under control in prior years but, has made a deliberate increase on SG&A costs in the cur-

9) One may raise a concern about the confounding effect of SG&A signals and the deflator of the dependent variable (i.e. stock price). The concern, however, can be mitigated since the stock price is measured in year t-1 when SG&A signals in year t to have almost no effect. Moreover, in earnings prediction models in fundamental analysis, the dependent variable, one-year-ahead earnings is conventionally calculated as changes in earnings per share from t+1 to t, deflated by stock price at year t-1 (i.e. $(EPS_{i,t+1} - EPS_{i,t})/P_{i,t-1}$) (Lev and Thiagarajan 1993; Abarbanell and Bushee 1997; Anderson et al. 2007). Hence, we believe that the timing difference reduces the confounding effect.

10) We further test whether an increase in SG&A ratio for cost-efficient firms affects future changes in market value (i.e. $(MV_{i,t+1} - MV_{i,t})/MV_{i,t}$). We find that an intended increase in SG&A ratio of cost-efficient firms, on average, does not significantly affect changes in market value but interestingly, when those cost-efficient firms are run by high ability managers, we find that an intended increase in SG&A costs results in a significant increase in market value. We can infer that an intentional increase in SG&A costs, which is decided by high ability managers, is highly valued in the market, emphasizing the importance of managerial ability. However, we do not know whether the positive impact on the market value of high-ability firms comes from positive future profits driven by SG&A investment or investors' favorable perception on an increase in SG&A. These results provide us an implication beyond our research question, which focuses on subsequent accounting performance.

11) We acknowledge that SG&A cost management may differ by a firm's business strategy even for firms in same industry. Thus, we employ Bentley et al. (2013)'s business strategy index, which is computed based on six strategy components (namely, R&D/sales, employees/sales, the percentage change in total revenue, SG&A/sales, standard deviation of total number of employees, and capital intensity). We define prospectors and defenders by the sample median of the business strategy index. Then, we classify SG&A cost efficient and inefficient firms by using the average SG&A ratio in same industry-strategy. Specifically, if the firm has their SG&A ratio below the industry-business average in the previous year, such firm is likely to be cost-efficient firm and thus, an increase in SG&A ratio in the current year is deliberately decided by managers to improve profitability. Using this new benchmark, we find that an increase in SG&A ratio of SG&A efficient firms leads to improved future profitability when the firm is run by high ability managers, consistent with our main result (untabulated).

12) We use Korean Standard Industrial Classification (KSIC) two-digit code to calculate the industry average of the SG&A ratio. Although we acknowledge the fact that cost efficiency concept might vary widely from firm to firm, using industry average as a benchmark would remove systematic differences in SG&A ratio across industries.

rent year then, such increases in SG&A costs reflect managers' intended investment that would positively affect future firm performance. Specifically, if the firm exhibits their SG&A ratio below the industry average in the previous year, an increase in SG&A ratio in the current year is attributed to managers' intention or deliberate resource adjustment decision which is to enhance future performance. Thus, firms whose SG&A ratio is below the industry average in the previous year is called cost-efficient firms. In contrast, if the SG&A ratio is above the industry average in the previous year, then an increase in SG&A ratio in the current year would be adding another inefficiency in terms of cost control. Thus, an increase in SG&A ratio of these firms should be not intended and would indicate managers' loss of cost control. Thus, we cannot expect an improvement in future profitability for such firms with deficiencies in SG&A cost control. Firms' SG&A ratio is above the industry average in the previous year is called cost-inefficient firms.

In terms of variable measurements, we identify intended increase in SG&A ratio using $SGA\_Ratio\_low_{i,t}$, which is defined as changes in SG&A ratio (i.e. $(SGA_{it}/Sales_{it}) - (SGA_{it-1}/Sales_{it-1})$) if the firm-specific SG&A ratio is below or equal to the industry average in the previous period or 0 otherwise. On the other hand, unintended increase in SG&A ratio identified by $SGA\_Ratio\_high_{i,t}$ is defined as changes in SG&A ratio (i.e. $(SGA_{it}/Sales_{it}) - (SGA_{it-1}/Sales_{it-1})$) if the firm-specific SG&A ratio is above the industry average in the previous period or 0 otherwise.

We expect that the coefficient on $SGA\_Ratio\_low_{i,t}$ (β_2) is positive indicating that the intentional investments in SG&A of cost-efficient firms lead to increased operating profits for the future. Although Baumgarten et al. (2010) have no prediction regarding $SGA\_Ratio\_high_{i,t}$ firms, it is likely that the coefficient on $SGA\_Ratio\_high_{i,t}$ (β_3) is negative, if deficient cost control directly leads to negative future performance in the near future.

Other financial ratios beyond SG&A ratios can provide predictive information on future earnings change (Ou 1990). Thus, we include other signals as control variables in Model (1) that are (i) current change in operating earnings per share ($chg\_EPS_{i,t}$), (ii) the dummy variable for sales increases ($DSalesIncr_{i,t}$), (iii) the dummy variable for SG&A ratios below or equal to the industry average in the previous period ($DSGA\_low_{i,t}$), (iv) inventory ($chg\_INV_{i,t}$), (v) accounts receivables ($chg\_AR_{i,t}$), (vi) capital expenditures ($chg\_CAPEX_{i,t}$), (vii) gross margin ($chg\_GM_{i,t}$), (viii) labor intensity ($chg\_LABOR_{i,t}$), (ix) leverage ($chg\_LEV_{i,t}$), and (x) sales growth signal ($chg\_SalesGrowth_{i,t}$).[13]

13) See Appendix A for variable definitions in detail.

To test our main research question whether managerial ability affects the positive association between SG&A cost management and future profitability, we divide the sample into two based on the sample median of managerial ability[14] and run Model (1), separately for each subsample. Considering the fact that firms run by high ability manager and firms run by low ability managers differ significantly, we conduct subsample analysis in terms of managerial ability to let control variables to have varying degrees within each subsample. Since high ability managers can better predict future demands and have better understandings of industry trend and their firm's operation (Demerjian et al. 2013), they are more likely to manage costs in an efficient way that improves future profitability compared to low ability managers. We believe that the relation between an increase in SG&A ratio of SG&A efficient firms and future operating earnings would differ based upon the degree of management's capability in converting an input (e.g. SG&A costs) to an output (e.g. operating earnings).

3.2 Empirical Construct of Managerial Ability

Demerjian et al. (2012) employ data envelopment analysis (DEA) and have introduced a new measure of managerial ability covering most U.S. firms, based on managers' efficiency in generating revenues. Since the development of DEA-based managerial ability proxy, many prior studies have started to investigate the importance of managerial impact on various economic outcomes (Demerjian et al. 2013; Baik et al. 2011; Krishnan and Wang 2015; Koester et al. 2016; Bonsall et al. 2017). In the same vein, we take advantage of DEA-based managerial ability in our research design to investigate whether the SG&A cost investment managed by high ability managers lead to increased future operating performance.

We construct managerial ability using accounting information of Korean listed firms in Korean Stock Exchange (KSE) following Ko et al. (2013) and Park et al. (2016). Park et al. (2016) have slightly modified the variables used in Demerjian et al. (2012) due to data availability and Korean accounting standard.

In particular, as the first step, we use DEA estimation to construct firm efficiency estimates relative to their industry peers in the same year, capturing how efficiently the firms transform corporate resources to sales revenue compared to other firms in the same industry-year.[15),16)] The more outputs at a given level of input resources are defined as

14) See Section 3.2 Empirical Construct of Managerial Ability for the detail information on the variable measurement of DEA-based managerial ability.

15) The estimation of firm efficiency through the data envelop analysis (DEA) is based on the assumption of variable

higher ability. In the DEA model in estimating firm efficiency, we use sales revenue as an output measure and four different revenue-generating resources that are the cost of goods sold, SG&A (selling, general, and administrative) expenses, net PPE (property, plant, and equipment) and intangible assets. The two stock variables (net PPE, intangible assets) are measured at the beginning of year t, and the two flow variables (cost of goods sold, SG&A costs) are measured over year t.

$$\max \theta = SALE / (v_1 COGS + v_2 SG\&A + v_3 PPE + v_4 INTANG) \quad (2)$$

where,

$SALE$ = Sales revenue for firm i in year t;
$COGS$ = Cost of goods sold for firm i in year t;
$SG\&A$ = Selling, general, and administrative costs for firm i in year t;
PPE = Tangible assets (tangible assets-land-construction in progress) for firm i in year $t-1$;
$INTANG$ = Intangible assets for firm i in year $t-1$.

But, firm efficiency measured in the first steps could be affected by firm characteristics. For example, large or industry-leading firms could have negotiation power in purchasing production component, which results in lower cost of goods sold and consequently leads to higher firm efficiency. Then, as the second step, we parse out manager-specific effects from firm efficiency estimates. To do so, they conduct Tobit regression by industry where firm efficiency estimates (which is measured in the first step) are regressed on several firm-level characteristics (e.g. firm size, market share, free cash flow indicator, firm age, business segmentation and foreign currency translation accounts) and year fixed effects. The residual from the regression is referred to as managerial ability.

$$\text{Firm Efficiency}(\theta)_{i,t} = \alpha + \delta_1 SIZE_{i,t} + \delta_2 MSHARE_{i,t} + \delta_3 FCF_{,t} + \delta_4 Firmage_{i,t} + \delta_5 BSEG_{i,t} + \delta_6 Foreign_{i,t} + Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (3)$$

where,

θ = The firm efficiency measured by DEA;

returns to scale to accommodate firm size effects instead of assuming constant returns to scale as suggested by Demerjian et al. (2012).

16) Peter Demerjian recently provides, in his website, a revised measurement of managerial ability in which relative firm efficiency is calculated within the same industry and year, considering that industry's underlying characteristics will change over time. Moreover, Korea is one of the countries that have a fast-growing economy in the word. Hence, it is more appropriate to measure firm efficiency relative to peers in the same industry and year. Both Ko et al. (2013) and Park et al. (2016) that illustrate the method to estimate firm efficiency using Korean firm data also measure relative efficiency score of firms in the same industry and year.

SIZE = Natural log of total assets;
MSHARE = The percentage of revenues earned by the firm within its industry;
FCF = 1 if free cash flow(net income before depreciation-change in operating capital-capital expenditure) is greater than 0, otherwise 0;
Firmage = Natural log of (1+the number of years the firm has been listed);
BSEG = The number of product sales ratio that exceeds 10%;
Foreign = The absolute magnitude of foreign currency translation accounts (foreign currency gain, foreign currency translation loss, gain on foreign currency transactions, loss on foreign currency transactions) divided by total revenue.

Alternative measures of managerial ability could be media citation on managers (Baik et al. 2011), industry-adjusted stock returns (Fee and Hadlock 2003), industry-adjusted ROA (Rajgopal, Shevlin, and Zamora 2006), pay-for-performance sensitivity (Milbourn 2003) and management pay level (Carter, Franco, and Tuna 2010). However, the above-suggested measures are noisy and are difficult to be attributed solely to the managers; rather they represent significant aspects of the firm. The DEA-based managerial ability, however, is more likely to capture the aspects of individual managers than the firm as proved by numerous validity tests conducted in Demerjian et al. (2012) for using U.S. data and Ko et al. (2013) for using Korean data. Furthermore, DEA estimation uses actual firm performance data and directly gauges the managerial ability to maximize firm performance and value, while other measures use the data reflecting perceived managerial ability by outsiders (e.g., media citations, CEO awards).

3.3 Sample Selection

Our sample is based on Korean companies listed on Korean Stock Exchange (KSE) from 2000 to 2014. The initiating sample covers the period from 1998 to 2015 since we need prior two years information to measure certain variables in the regression and, the main dependent variable is future profits which require the profitability information in one year ahead. We obtain annual financial statement data from *DataGuide Pro*.

Table 1 demonstrates our sample selection procedure. A total of 18,324 firm-year observations from 1998 to 2015 are initially available. We extract only non-financial firms. We further restrict the observations with December-fiscal year-end in order to align recognition timing of accounting items across firms since only a small fraction of companies in Korea have fiscal year ends other than December. We include companies that were delisted during our sample period. In order to replicate the fundament analysis suggested in Baumgarten et al. (2010), sales revenue, SG&A costs and cost of goods sold in both current and prior year data is necessary thus, screening out the missing variables in the

〈Table 1〉 Sample Selection Procedure

	Sample screening criteria	Firm-years
(1)	Initial Sample: Nonfinancial firms listed in Korean Stock Exchange (KSE) with December fiscal year-end for the sample period from 1998 to 2015 (including delisted firms)	18,324
(2)	Firms with non-missing information of sales revenue, selling, general and administrative expenses, cost of goods sold for the current and prior year	11,983
(3)	Firms in at least 10 observations for each KSIC industry(2digit)-year with prior SG&A ratio and cost of goods sold ratio	9,985
(4)	Firms with DEA-based managerial ability	5,270
(5)	Firms with non-missing financial data to measure control variables	3,738
(6)	Final sample from 2000 to 2014 after deleting top and bottom 1% of continuous variables used in the regression estimation	3,122

above variables leads to 11,983 firm-year observations. Next, in order to estimate the industry averages of SG&A ratio and Cogs ratio in the previous period, we require at least 10 observations for each industry-year where two-digit KSIC code is used for industry classification. It results in 9,985 firm-year observations. Then, the observations are deleted if the data of DEA-based managerial ability proxy is missing, resulting in 5,270 firm-years. Further, if we delete missing variables for control variables in our regression model, we end up with 3,738 firm-year observations. To alleviate concerns over potential problems arising from the existence of extreme outliers, we truncate observations that fall within the top and bottom 1 percent of the variables used in our main regressions. After these sample selection criteria, we have a final sample of 3,122 firm-years and 412 unique firms during our sample period.

Ⅳ. Empirical Results

4.1 Descriptive Statistics

Table 2 provides descriptive statistics regarding SG&A ratio. We divide the sample into two groups based on the past association between a firm's SG&A ratio and its own industry average in the previous period. About 72% of our sample falls into the group where the firm-specific SG&A ratio is below or equal to its industry average in the prior year (hereafter, below-average group), and the remaining 28% of firm-years have the firm-specific SG&A ratio that is above the industry average (hereafter, above-average group). We report the proportion of sample for the segmentation by year and, the proportion of firm-years in below average group varies between 65 and 76% and 24 and 31% in the above-

average group during our sample period. The mean SG&A ratio in the previous year is 8% in the below-average group and 22% in the above-average group. The SG&A ratios in both groups are lower compared to those in U.S. findings, but there is a clear distinction when we apply past SG&A cost efficiency as a criterion.

Table 3 Panel A reports descriptive statistics on past SG&A efficiency. On average, 72 percent of the companies are cost-efficient while the remaining 28 percent of companies are classified as cost-inefficient firms.[17] Table 3 Panel B provides descriptive statistics on

〈Table 2〉 Descriptive Statistics by Past SG&A Efficiency

	SG&A Ratio Below Industry Mean		SG&A Ratio Above Industry Mean	
Year	Proportion	Mean SG&A Ratio	Proportion	Mean SG&A Ratio
2000	69%	7%	31%	19%
2001	76%	7%	24%	20%
2002	75%	7%	25%	19%
2003	71%	8%	29%	20%
2004	72%	8%	28%	21%
2005	74%	8%	26%	20%
2006	75%	9%	25%	26%
2007	74%	8%	26%	23%
2008	76%	8%	24%	24%
2009	76%	8%	24%	23%
2010	72%	8%	28%	21%
2011	70%	8%	30%	25%
2012	71%	8%	29%	26%
2013	68%	8%	32%	24%
2014	65%	9%	35%	24%
Average	72%	8%	28%	22%

Note: This table shows the mean SG&A ratio and the proportions resulting from the differentiation by past SG&A cost efficiency by year. The sample includes 3,122 firm-years from the sample period 2000-2014. A firm is classified as "below industry mean" if either SG&A ratio was below or equal to the average of its industry in the previous year. In contrast, a firm is classified as "above industry mean" if either SG&A ratio was above the average of its industry in the previous year. We use two-digit KSIC industry classification.

17) Baumgarten et al. (2010) also find a similar pattern. About 65 percent of companies are classified as cost-efficient firm while the remaining 35 percent of companies are cost-inefficient.

〈Table 3〉 Descriptive Statistics

Panel A. Descriptive Statistics on Past SG&A Efficiency

	SG&A Ratio Below Industry Mean	SG&A Ratio Above Industry Mean	Full Sample
N	2,253	869	3,122
Proportion	72%	28%	100%
Managerial Ability	0.007	0.004	0.006
Mean Sales (billion)	1,415	2,106	1,607
Mean Operating Earnings (billion)	91	156	109
SG&A Ratio (%)	8%	22%	12%

Panel B. Descriptive Statistics on Regression Variables (N=3,122)

variable	Mean	Std	Q1	Median	Q3
Managerial Ability	0.006	0.058	-0.025	0.012	0.039
chg_SG&A Ratio (%)	0.020	1.725	-0.709	0.019	0.762
SGA_Ratio_low (%)	0.093	1.134	-0.286	0.000	0.392
SGA_Ratio_high (%)	-0.073	1.295	0.000	0.000	0.000
$chg\_EPS_{i,t+1}$	-0.016	0.377	-0.055	0.000	0.051
$chg\_EPS_{i,t}$	-0.014	0.384	-0.054	0.000	0.053
chg_INV	0.000	0.038	-0.015	0.000	0.014
chg_AR	0.001	0.047	-0.022	-0.001	0.021
chg_CAPEX	-0.035	12.328	-0.809	0.009	0.840
chg_GM	0.003	0.031	-0.014	0.002	0.020
chg_LABOR	-0.069	0.174	-0.153	-0.056	0.031
chg_LEV	-0.011	0.237	-0.060	-0.005	0.036
chg_SalesGrowth	-0.015	0.233	-0.132	-0.011	0.106
DSalesIncr	0.690	0.463	0.000	1.000	1.000
DSGA_low	0.722	0.448	0.000	1.000	1.000
STD_SALE	0.183	0.123	0.105	0.158	0.227

Note: This table presents summary statistics for the variables used in the regression over the sample period 2000-2014. All variables are defined in Appendix A.

regression variables. As for the main interest variable, the mean (median) value of *Managerial Ability* is 0.01 (0.01). The mean and median value of *Managerial Ability* is close to zero because, by its construction, it is the residual of the firm efficiency measure. The mean (median) of changes in the ratio of SG&A to sales is 0.02 (0.02) percent. The main test

variables, *SGA_Ratio_low* and *SGA_Ratio_high* are changes in the ratio of SG&A to sales for firms in below-average group and firms in the above-average group, respectively. The mean (median) of *SGA_Ratio_low* is 0.09 (0.00) percent with the standard deviation of 1.13 and the mean (median) of *SGA_Ratio_high* is -0.07 (0.00) percent with the standard deviation of 1.30.

Table 4 provides Pearson correlations for the variables in our main analysis. *Managerial Ability* is positively correlated with both *SGA_Ratio_low* and *SGA_Ratio_high*, yet the magnitude of the correlation is fairly small (correlation coefficient = 0.073 with *SGA_Ratio_low*, 0.67 with *SGA_Ratio_high*).[18] Meanwhile, the correlations between pairs of control variables are generally small, indicating that multicollinearity problems are minimal.

4.2 The Effect of a Change in SG&A Ratio on Changes in Future Operating Earnings

Table 5 analyzes the effect of changes in SG&A ratios on changes in future operating performance. The dependent variable is one-year ahead changes in operating earnings per share and the key test variables are changes in SG&A ratios separately for SG&A cost-efficient firm (i.e., below-average group) and SG&A cost inefficient firms (i.e., above-average group). In particular, *SGA_Ratio_low* captures an intended increase in SG&A ratio which is defined as changes in SG&A ratio in the case of a SG&A ratio below the industry average in the prior year and an unintentional increase in SG&A ratio identified by *SGA_Ratio_high* is defined as changes in SG&A ratio when a SG&A ratio is above the industry average in the previous period. We report the regression results with industry/year fixed effects and firm/year fixed effects in Column (1) and (2) and the standard errors are clustered at the firm level for all columns.

As expected, the coefficient on *SGA_Ratio_low* is positive and statistically significant across all model specifications. These results support the evidence that increases in the SG&A ratio by SG&A cost-efficient firms positively affect future profitability.[19] Meanwhile,

18) Fairly low correlations between *Managerial Ability* and both *SGA_Ratio_low* and *SGA_Ratio_high* potentially reduces the concern of high (low) ability managers systematically concentrated in cost-efficient firms (cost-inefficient firms).

19) The negative or zero value of *SGA_Ratio_low* variable means that SG&A spending decreases or does not change in an efficient firm. The underlying logic of our hypothesis is that an increase in the SG&A spending works as an investment expansion in intangible assets and positively affects future performance. Hence, it is possible that a reduction in SG&A ratio negatively affect future performance since firms lose a value-creating driver. To address this issue, we create a dummy variable *Inc_low* that equals one if *SGA_Ratio_low* is positive and zero otherwise, and an interaction term between *SGA_Ratio_low* and *Inc_low*, and then include the interaction term and a stand-alone term *Inc_low* in the regression model (1). In untabulated results, we find that the coefficient on the interaction term is significantly positive, but we cannot find significant results for the coefficient on the stand-alone term *SGA_Ratio_low*.

〈Table 4〉 Correlation

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	*Managerial Ability*	1.000												
(2)	*SGA_Ratio_low*$_i$	0.073	1.000											
		(0.000)												
(3)	*SGA_Ratio_high*	0.067	0.005	1.000										
		(0.000)	(0.797)											
(4)	*chg_EPS*$_{i,t+1}$	-0.053	0.031	-0.006	1.000									
		(0.003)	(0.084)	(0.724)										
(5)	*DSalesIncr*	-0.034	-0.322	-0.105	-0.036	1.000								
		(0.056)	(0.000)	(0.000)	(0.045)									
(6)	*DSGA_low*	0.030	0.051	0.090	-0.024	-0.025	1.000							
		(0.089)	(0.004)	(0.000)	(0.187)	(0.156)								
(7)	*chg_INV*	0.020	0.089	0.099	-0.039	-0.153	-0.020	1.000						
		(0.263)	(0.000)	(0.000)	(0.029)	(0.000)	(0.269)							
(8)	*chg_AR*	-0.023	0.134	0.036	0.034	-0.152	0.036	0.040	1.000					
		(0.200)	(0.000)	(0.043)	(0.055)	(0.000)	(0.047)	(0.026)						
(9)	*chg_CAPEX*	0.005	-0.006	0.009	0.001	0.025	-0.002	-0.025	0.006	1.000				
		(0.769)	(0.743)	(0.627)	(0.956)	(0.164)	(0.891)	(0.160)	(0.748)					
(10)	*chg_GM*	0.110	-0.070	-0.077	0.050	-0.075	0.011	0.029	0.006	-0.022	1.000			
		(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.540)	(0.104)	(0.743)	(0.230)				
(11)	*chg_LABOR*	0.047	0.385	0.148	-0.002	-0.498	-0.001	0.213	0.181	0.010	0.102	1.000		
		(0.008)	(0.000)	(0.000)	(0.913)	(0.000)	(0.961)	(0.000)	(0.000)	(0.588)	(0.000)			
(12)	*chg_LEV*	-0.017	0.009	0.011	-0.009	-0.008	-0.006	0.035	0.050	0.007	0.094	0.044	1.000	
		(0.330)	(0.612)	(0.546)	(0.602)	(0.657)	(0.731)	(0.051)	(0.005)	(0.691)	(0.000)	(0.014)		
(13)	*chg_SalesGrowth*	-0.073	-0.305	-0.137	0.022	0.417	-0.062	-0.117	-0.079	0.033	-0.151	-0.442	-0.048	1.000
		(0.000)	(0.000)	(0.000)	(0.214)	(0.000)	(0.000)	(0.000)	(0.000)	(0.068)	(0.000)	(0.000)	(0.007)	

Note: This table presents correlations among regression variables over the sample period 2000-2014. The *p*-values presented in parentheses. All variables are defined in Appendix A.

〈Table 5〉 Changes in SG&A Ratio and Changes in Future Profitability

	(2)	(3)
Dep.var =	$chg\_EPS_{i,t+1}$	$chg\_EPS_{i,t+1}$
$chg\_EPS_{i,t}$	-0.046	-0.103*
	(-0.81)	(-1.78)
$SGA\_Ratio\_low_{i,t}$	1.451**	1.545*
	(2.12)	(1.95)
$SGA\_Ratio\_high_{i,t}$	0.186	0.243
	(0.41)	(0.49)
$DSalesIncr_{i,t}$	-0.043**	-0.060***
	(-2.10)	(-2.59)
$DSGA\_low_{i,t}$	-0.032**	-0.018
	(-2.03)	(-0.53)
$chg\_INV_{i,t}$	-0.408**	-0.431*
	(-1.97)	(-1.89)
$chg\_AR_{i,t}$	0.203	0.252
	(1.36)	(1.48)
$chg\_CAPEX_{i,t}$	0.000	0.000
	(0.04)	(0.19)
$chg\_GM_{i,t}$	0.622***	0.518**
	(2.74)	(2.42)
$chg\_LABOR_{i,t}$	-0.093*	-0.102*
	(-1.76)	(-1.71)
$chg\_LEV_{i,t}$	-0.025	-0.029
	(-0.58)	(-0.55)
$chg\_SalesGrowth$	0.082***	0.106***
	(2.78)	(3.18)
Constant	-0.107**	-0.148***
	(-2.45)	(-2.73)
Industry effects	Yes	No
Firm effects	No	Yes
Year effects	Yes	Yes
Firm clustering	Yes	Yes
Observations	3,122	3,122
Adjusted R^2	0.013	0.007

Note: This table shows the regression results for Model (1), estimating the relation between changes in SG&A ratio and changes in future operating earnings. The sample includes 3,122 firm-year observations from 2001-2014. The *t*-statistics presented in parentheses are computed based on standard errors clustered by firm. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively, based on two-tailed tests. All variables are defined in Appendix A.

the coefficient on *SGA_Ratio_high* is positive but not significant across all columns.[20)]

Regarding the effects of other accounting signals on future operating earnings per share, we find that most variables exhibit significant coefficients excluding capital expenditures and leverage in our sample. It is because capital expenditures and leverage do not have immediate effects on one-year-ahead operating earnings per share. However, we find strong signaling effects on future profitability for sales change direction (*DSalesIncr*), inventory (*chg_IINV*), gross margins (*chg_GM*) and growth prospects (*chg_SalesGrowth*).[21)]

4.3 The Role of Managerial ability in the Relation between Changes in SG&A Ratio and Future Operating Earnings

In our hypothesis 2, we aim to investigate the effect of managerial ability on the association between an intended increase in the SG&A ratio and enhanced future profits. A management team is a core group of people who have responsibilities for cost control, and thus their capabilities in adjusting resources may significantly influence future profitability. High ability managers are more likely to make rational resource adjustment decisions that improve future operational performance. Thus, we conjecture that Baumgarten et al. (2010)'s findings of a positive relation between SG&A increases and future operating performance for SG&A cost-efficient firm may be driven by management's capability in converting resources into the outcomes. In other words, managerial ability can be an important factor that drives a positive relation between SG&A investments and future profitability.

To test the role of managerial ability, we divide the sample into two based on the sample median (by industry and year) of managerial ability and reanalyze the previous tests separately for firms with high-ability managers

20) This insignificant result is inconsistent with the expectation that unintentional increases in SG&A spending of cost-inefficient firms may negatively affect firm performance. We cautiously interpret this result as follows. SG&A spending is considered as the investment in intangible assets such as brand value, labor productivity, and product innovation. It takes some time for such SG&A investment to generate positive outcome while SG&A spending is immediately recognized as expenses. Hence, there is a time lag between revenue generation from the SG&A investment and SG&A expenditure. Inefficient SG&A spending is less likely to generate positive outcome in the future, but is recognized as an expense in a period of spending. Hence, it may negatively affect profitability in a spending period whereas it is less likely to influence operating outcome in the future. The focus of this paper is on the future performance of SG&A spending (a dependent variable: the operating performance of '$t+1$' period). That would be the reason why we cannot find significantly negative results of unintentional increases in SG&A spending.

21) Managers may face perverse incentive in use of SG&A costs. For example, Chen et al. (2012) find that managers' empire building incentive induces managers to retain slack resources in sales decreasing periods thus results in sticky cost behavior. Thus, managers' agency problem may lead to an increase in SG&A costs. To resolve this concern, we control for corporate governance variables (i.e. the ratio of outside directors, board size) in the regressions since strong corporate governance mitigates the effect of the agency problem on SG&A cost management. Our results are robust after controlling for corporate governance.

versus low-ability managers. The results are presented in Table 5. The dependent variable is one-year ahead changes in operating earnings per share ($chg\_EPS_{i,t+1}$).

In Table 6, we find that the positive subsequent performance following an intentional SG&A investment of cost-efficient firms only appears in firms with high-ability managers. The coefficient on *SGA_Ratio_low* is positive and significant at 5% level in the firms with high ability managers (coefficient=2.350; t-value=2.11), whereas it is insignificant in the firms with low ability managers (coefficient=0.821; t-value=0.87). This finding indicates that an intentional increase in SG&A ratio leads to an improvement in subsequence operating performance only when the firm is run by high-ability managers. The coefficient on *SGA_Ratio_high* is insignificant for both groups, indicating that SG&A increase by firms previously having lack of efficient cost control (i.e., SG&A increase due to the failure of cost control) do not influence future profits regardless of the management's capabilities. Overall, our results imply that increase in SG&A for investments of input resources decided by high-ability managers are positively related with enhanced future profits whereas, the SG&A investments managed by low-ability managers do not have a significant association with increased future profitability.

4.4 Additional Tests: Influence of Potential for Improvement in Operational Processes

In addition to change in SG&A ratio, Baumgarten et al. (2010) further have introduced the implication of change in Cogs ratio (the ratio of cost of good sold to sales). High Cogs ratio would indicate low production efficiency that can be improved in the future if there is managers' effort to efficiently handle the production process. Hence, high Cogs ratio implies that there is a larger extent of room for improvement in the production process. On the other hand, firms with low Cogs ratio have much less room for improvement in production operation compared to firms with high Cogs ratio since production efficiency of those firms is too high to be improved in the future. Hence, the probability that future profits are improved through enhanced efficiency in the production process (i.e., production cost reduction) is greater in firms with high Cogs ratio than in firms with low Cogs ratio.[22)]

Given that operating earnings equal sales revenues minus costs of goods sold and SG&A costs, there are two mechanisms through which intended increases in SG&A spending (SG&A investment of SG&A cost-efficient firms in

22) However, we cautiously suggest this inference since having room for improvement does not necessarily mean that improvement can be always realized in the future. An underlying assumption of this argument is that firms of high Cogs ratio successfully perform some operation to increase production efficiency.

〈Table 6〉 Effect of Managerial Ability on the Relation between Changes in SG&A Ratio and Future Profitability

	(1) *High Ability* *(Managerial Ability* *≥Sample Median)*	(2) *Low Ability* *(Managerial Ability* *〈Sample Median)*
Dep.var =	$chg\_EPS_{i,t+1}$	$chg\_EPS_{i,t+1}$
$chg\_EPS_{i,t}$	0.009	-0.103
	(0.11)	(-1.27)
$SGA\_Ratio\_low_{i,t}$	2.350**	0.821
	(2.11)	(0.87)
$SGA\_Ratio\_high_{i,t}$	0.967	-0.513
	(1.64)	(-0.72)
$DSalesIncr_{i,t}$	-0.028	-0.062*
	(-1.14)	(-1.95)
$DSGA\_low_{i,t}$	-0.041**	-0.024
	(-1.98)	(-1.02)
$chg\_INV_{i,t}$	-0.753***	-0.033
	(-3.11)	(-0.10)
$chg\_AR_{i,t}$	0.295	0.090
	(1.41)	(0.48)
$chg\_CAPEX_{i,t}$	-0.001	0.001*
	(-1.63)	(1.83)
$chg\_GM_{i,t}$	1.020***	0.307
	(2.85)	(1.02)
$chg\_LABOR_{i,t}$	-0.071	-0.119
	(-0.95)	(-1.51)
$chg\_LEV_{i,t}$	-0.036	-0.026
	(-0.99)	(-0.34)
chg_SalesGrowth	0.071*	0.094*
	(1.88)	(1.96)
Constant	-0.109	-0.107*
	(-1.52)	(-1.86)
Industry effects	Yes	Yes
Year effects	Yes	Yes
Firm clustering	Yes	Yes
Observations	1,577	1,545
Adjusted R^2	0.012	0.024

Note: This table shows the regression results for Model (1) with respect to the magnitude of *Managerial Ability*. To divide the sample in two low and high-ability group, we use the sample median (by year and industry) of *Managerial Ability* in year t-1. The sample includes 3,122 firm-year observations from 2001-2014. The *t*-statistics presented in parentheses are computed based on standard errors clustered by firm. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively, based on two-tailed tests. All variables are defined in Appendix A.

the previous year) bring positive impact on the future profits: increasing sales revenues and decreasing production costs. Advertising and marketing activities create additional demand for products and service. Products with an advanced performance and innovative services also have the same effect on demand. Hence, SG&A cost can raise sales revenue if it is intentionally used as an investment. In addition, production costs can be reduced SG&A spending. For example, in a semiconductor industry, one of the important R&D projects is to increase the yield rate of production. Hence, SG&A expenses improve future profits through both ways.

Taken together, we can make the following inference. When SG&A spending works as an investment (i.e., SG&A spending of SG&A cost-efficient firms in the previous year), such SG&A investment may enhance low production efficiency of high Cogs-ratio firms. However, firms having low Cogs ratio cannot benefit from such SG&A investment in terms of production efficiency. Consequently, it is likely that the positive performance effects of SG&A investment of firms with SG&A cost efficiency and Cogs inefficiency in the previous year would be the highest, compared to other counter-groups. It is because such firms have the potential for cost reduction in the production operation as well as sales increase for products and services. To operationalize this idea, we use two benchmarks: (1) the past relationship of the SG&A ratio to its industry mean and (2) the past relationship of the Cogs ratio to its industry mean, following Baumgarten et al. (2010). We use the following Model (4) to test the effect of a change in SG&A ratio for the group on future operating performance.

$$\begin{aligned} chg\_EPS_{i,t+1} = {} & \alpha + \gamma_1\, chg\_EPS_{i,t} \\ & + \gamma_2 SGA\_Ratio\_ll_{i,t} + \gamma_3 SGA\_Ratio\_lh_{i,t} \\ & + \gamma_4 SGA\_Ratio\_hl_{i,t} + \gamma_5 SGA\_Ratio\_hh_{i,t} \\ & + \gamma_6 DSalesIncr_{i,t} + \gamma_7 DSGA\_low_{i,t} \\ & + \gamma_8\, chg\_INV_{i,t} + \gamma_9\, chg\_AR_{i,t} \\ & + \gamma_{10}\, chg\_CAPEX_{i,t} + \gamma_{11}\, chg\_GM_{i,t} \\ & + \gamma_{12}\, chg\_LABOR_{i,t} + \gamma_{13}\, chg\_LEV_{i,t} \\ & + \gamma_{14}\, chg\_SalesGrowth_{i,t} \\ & + Year\ Fixed\ Effects \\ & + Industry(or\ Firm)\ Fixed\ Effects \\ & + \varepsilon_{i,t} \end{aligned} \quad (2)$$

$SGA\_Ratio\_ll_{i,t}$ = changes SG&A ratio if the firm-specific SG&A ratio and the firm-specific Cogs ratio were below or equal to their industry averages in year *t-1* or 0 otherwise;

$SGA\_Ratio\_lh_{i,t}$ = changes SG&A ratio if the firm-specific SG&A ratio was below or equal to and the firm-specific Cogs ratio were above its industry averages in year *t-1* or 0 otherwise;

$SGA\_Ratio\_hl_{i,t}$ = changes SG&A ratio if the firm-specific SG&A ratio was above and the firm-specific Cogs ratio was below or equal to its industry average in year *t-1* or 0 otherwise;

$SGA\_Ratio\_hh_{i,t}$ = changes SG&A ratio if the

firm-specific SG&A ratio and the firm-specific Cogs ratio were above their industry averages in year *t-1* or 0 otherwise;

The important variable is $SGA\_Ratio\_lh_{i,t}$ which indicates intended SG&A increase of firm with larger room for cost reduction in the production process. Thus, we expect that the coefficient on $SGA\_Ratio\_lh_{i,t}$ (γ_3) is more positive and statistically significant when it is compared to coefficients on other subgroups (i.e., $SGA\_Ratio\_ll_{i,t}$ (γ_2), $SGA\_Ratio\_hl_{i,t}$ (γ_4), and $SGA\_Ratio\_hh_{i,t}$ (γ_5)). In Model (4), we also include other financial ratios as control variables and the standard errors are clustered by firm.

However, whether the lack of operational efficiency (i.e. high Cogs ratio) is solved and thus, improve future performance or not depends upon managers' ability. Even if there is the extent of room for improvement in production, managers with low ability may fail to suggest proper solutions to the problem or even may fail to detect the problem that they have in the production process. Thus, we further conduct cross-sectional test based on managerial ability by running Model (4) separately for firms with high ability managers and low ability managers.

We present the corresponding results in Table 7. In Panel A, we report the regression results of Model (4) with industry/year fixed effects and firm/year fixed effects in Column (1) and (2). Consistent with our prediction, the coefficient on *SGA_Ratio_lh* is positive and significant at 5% level, and the magnitude of the coefficient is the largest among the four groups in all columns, whereas the remaining groups yield insignificant coefficients consistent with the findings in Baumgarten et al. (2010). Thus, an intentional SG&A investment for a SG&A efficient firm with the room for feasible reductions in the cost of goods sold exhibit greater future profitability compared to other firms.

In Panel B of Table 7, we find that intended SG&A increase of SG&A cost-efficient firms (i.e., SG&A investment) with a large room for improvement in production, which is identified by *SGA_Ratio_lh* enhances future profits only for firms controlled by high-ability managers. Specifically, the coefficient on *SGA_Ratio_lh* is positive and significant for the firms with high-ability managers (coefficient=3.222; t-value = 2.56) whereas, it is insignificant for firms with low ability managers (coefficient= 0.734; t-value = 0.74). The difference between the two groups is statistically significant at the 5% level. Overall, our results imply that adequate SG&A investments decided by high-ability managers lead to enhanced future profits whereas, the SG&A investments managed by low-ability managers do not significantly lead to increased future profitability.

〈Table 7〉 Influence of Potential Enhancements of Operating Processes

Panel A. Change in SG&A Ratio, Changes in Cogs Ratio and Future Profitability

Dep.var =	(2) $chg\_EPS_{i,t+1}$	(3) $chg\_EPS_{i,t+1}$
$SGA\_Ratio\_ll_{i,t}$	0.113	0.328
	(0.09)	(0.20)
$SGA\_Ratio\_lh_{i,t}$	1.801**	1.830**
	(2.41)	(2.17)
$SGA\_Ratio\_hl_{i,t}$	0.729	0.672
	(1.41)	(1.23)
$SGA\_Ratio\_hh_{i,t}$	-1.170	-1.057
	(-1.24)	(-0.82)
Controls	Yes	Yes
Industry effects	Yes	No
Firm effects	No	Yes
Year effects	Yes	Yes
Firm clustering	Yes	Yes
Observations	3,122	3,122
Adjusted R^2	0.014	0.007

Panel B. Effect of Managerial Ability on the Relation between Change in SG&A Ratio, Changes in Cogs Ratio and Future Profitability

	(1) *High Ability* (*Managerial Ability* ≥*Sample Median*)	(2) *Low Ability* (*Managerial Ability* 〈*Sample Median*)
Dep.var =	$chg\_EPS_{i,t+1}$	$chg\_EPS_{i,t+1}$
$SGA\_Ratio\_ll_{i,t}$	0.095	1.709
	(0.06)	(1.01)
$SGA\_Ratio\_lh_{i,t}$	3.222**	0.735
	(2.56)	(0.74)
$SGA\_Ratio\_hl_{i,t}$	0.949	0.749
	(1.36)	(0.94)
$SGA\_Ratio\_hh_{i,t}$	1.268	-2.402*
	(1.12)	(-1.81)
Controls	Yes	Yes
Industry effects	Yes	Yes
Year effects	Yes	Yes
Firm clustering	Yes	Yes
Observations	1,577	1,545
Adjusted R^2	0.012	0.025

Note: This table shows the regression results for Model (4), estimating the relation between changes in SG&A ratio, changes in Cogs ratio and changes in future operating earnings. In Panel A, we present the regression results for Model (4) while, Panel B reports the regression results of Model (4), with respect to *Managerial Ability*. To divide the sample in two low and high-ability group, we use the sample median (by year and industry) of *Managerial Ability* in year t-1. The *t*-statistics presented in parentheses are computed based on standard errors clustered by firm. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively, based on two-tailed tests. All variables are defined in Appendix A.

Ⅴ. Conclusion

Recently, academia focuses on the SG&A spending in terms of investment. Mainly consisting of advertising and marking expense, R&D expense, white collar compensation, the SG&A spending can create a brand, innovation, and human capital. Since knowledge and organizational capital is the main driver for value creation in a new economy, there is a call for research on the positive effect of the SG&A spending on firm performances. However, there still exists traditional view that the SG&A expense is a cost and an increase in SG&A expense negatively affects firm performance. Hence, facing two conflicting interpretations, we examine whether and when an increase in SG&A positively affects firm performance in a specific setting.

We find that the intended increase in the SG&A spending has the positive effect on future operating performance. To identify whether an increase in SG&A spending is intended by the management or not, we use the past efficiency in SG&A cost management following Baumgarten et al. (2010). Specifically, if the SG&A ratio is below the prior year's industry average (i.e. SG&A efficient firms), a current year's increase in SG&A ratio is considered as managers' intention to enhance future performance. However, if the SG&A ratio is above the prior year's industry average (i.e. SG&A inefficient firms), a current year's increase in SG&A ratio can be interpreted as inefficiency cost control and therefore unintentional increase. Consistent with Baumgarten et al. (2010), the positive performance effect for the intended increases in SG&A is also proved using our sample of Korean listed firms.

However, an intended increase in SG&A does not always lead to positive future profits. Even though managers intentionally increase SG&A expense as an investment, it cannot create positive profits if managers poorly manage the investment. However, able managers effectively do investment activity since they have the ability to select more profitable R&D project and suitable marketing channel. Hence, we believe that managerial ability can be one of the important links between SG&A investments and positive future profitability. Consistent with our prediction, we find that the positive association between an intended increase in SG&A expense and future profits is observed only in firms with high ability managers.

Our study is subject to the following limitation. Our proxy for managerial ability, MA score, may have validity issue. It may capture another aspect of the firm effect that cannot be adequately controlled in the second steps of the measurement. Hence, it is possible that firm effect on the positive association between SG&A investment of cost-efficient firms and future profitability is disguised as the effect

of managerial ability. Moreover, we cannot deeply think the expansion of SG&A spending under firms' financial constraint. We leave this issue as a future research topic.

Notwithstanding the limitations, our paper contributes to the growing literature that studies the positive effect of SG&A spending on firm performance, adding managerial ability as a specific link between the increase in SG&A spending and positive future profits. Other than managerial ability, however, future research could further investigate another mediator such as corporate governance and CEO characteristics that drive positive future profitability through the intentional SG&A investment. Additionally, how many years the impact of SG&A spending on positive profits lasts could be an interesting research question. We investigate the impact of the SG&A spending on just one-year-ahead profits. However, considering that the SG&A spending drives the positive future profit as an investment, especially, intangible investment such as accumulation of knowledge and organizational capital, it could be interesting to see the long-term effect of SG&A spending on firm performance.

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〈Appendix A〉 Variable Definitions

Variable		Definition
Future profitability		
$chg\_EPS_{i,t+1}$	=	changes in operating earnings per share scaled by stock price in the beginning of year (i.e. $(EPS_{i,t+1} - EPS_{i,t})/P_{i,t-1}$); *EPS* is computed as operating earnings are divided by the number of shares outstanding where operating earnings is defined as sales revenue minus cost of goods sold and SG&A expenses;
Managerial ability measure		
Managerial Ability	=	the proxy for managerial ability and is the measure developed by Demerjian et al. (2012). See Section 3.2 for detailed information.
SG&A ratio signals		
SGA_Ratio_low	=	changes in SG&A ratio (i.e. $(SGA_{it}/Sales_{it}) - (SGA_{it-1}/Sales_{it-1})$) if the firm-specific SG&A ratio is below or equal to the industry average in the previous period or 0 otherwise;
SGA_Ratio_high	=	changes in SG&A ratio (i.e. $(SGA_{it}/Sales_{it}) - (SGA_{it-1}/Sales_{it-1})$) if the firm-specific SG&A ratio is above the industry average in the previous period or 0 otherwise.
SG&A ratio and Cogs (cost of goods sold) ratio signals		
SGA_Ratio_ll	=	changes SG&A ratio if the firm-specific SG&A ratio the firm-specific Cogs ratio were below or equal to their industry averages in year *t-1* or 0 otherwise
SGA_Ratio_lh	=	changes SG&A ratio if the firm-specific SG&A ratio was below or equal to and the firm-specific Cogs ratio were above its industry averages in year *t-1* or 0 otherwise
SGA_Ratio_hl	=	changes SG&A ratio if the firm-specific SG&A ratio was above and the firm-specific Cogs ratio was below or equal to its industry average in year *t-1* or 0 otherwise
SGA_Ratio_hh	=	changes SG&A ratio if the firm-specific SG&A ratio the firm-specific Cogs ratio were above their industry averages in year *t-1* or 0 otherwise
Control variables		
DSalesIncr	=	a dummy variable that takes the value of 1 for increasing sales between year t-1 to t, 0 otherwise;
DSGA_low	=	a dummy variable that takes the value of 1 if the firm-specific SG&A ratio was below or equal to the industry-average in year t-1, 0 otherwise
chg_INV	=	change in the ratio of inventory to sales revenue from year t to t-1;
chg_AR	=	change in the ratio of accounts receivable to sales from year t to t-1;
chg_CAPEX	=	change in the ratio of capital expenditure to sales from year t to t-1 where capital expenditure is the change in property, plant and equipment (PPE) plus depreciation and amortization;
chg_GM	=	change in gross margin to sales from year t-1 to t;
chg_LABOR	=	change in sales per employee from year t-1 to year t divided by sales per employee in year t-1, where sales per employee is the ratio of sales to the number of total employees;
chg_LEV	=	change in the ratio of long-term debt to equity from year t to t-1;
SalesGrowth	=	change of sales growth from year t to t-1
STD_SALE	=	the standard deviation over the four years prior to year *t* divided by the mean of sales revenue over the four years prior to year *t* (Banker et al. 2014)

경영자 능력이 판매관리비 원가관리와 미래 성과의 관계에 미치는 영향에 대한 연구

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요 약

매출 대비 판매관리비 비율의 증가를 비효율적인 원가 관리로 보고, 결과적으로 미래 성과에 부정적인 영향을 미칠 것이라고 해석과, 이와는 반대로 매출 대비 판매관리비 비율의 증가를 투자의 관점에서 효율적인 원가 관리로 여겨 미래 성과에 긍정적인 영향을 미칠 것이라는 상반된 관점이 존재한다. 본 연구에서는 2000년부터 2014년까지 우리나라 유가증권상장기업을 대상으로 Baumgarten et al. (2010)에서 제시한 연구모형을 이용하여 매출 대비 판매관리비 비율의 증가가 경영자의 비효율적인 원가 관리로 인한 것인지 아니면 경영자에 의해 의도된 효율적인 원가관리인지 구분하였다. 분석결과, Baumgarten et al. (2010)의 결과와 일치하게 후자의 경우, 즉 경영자의 효율적인 원가관리에 의해 매출 대비 판매관리비 비율의 증가하였을 때 긍정적인 미래 성과로 이어졌다. 나아가, 본 연구에서는 Demerjian et al. (2012)가 제시한 경영자 능력 측정치를 사용하여 능력이 높은 경영자에 의해 매출 대비 판매관리비 비율의 증가가 계획된 경우에만 기업의 미래 성과에 긍정적인 영향을 미침을 검증하였다. 즉, 판매관리비 원가관리와 미래 성과와의 관계에서 원가조정에 대한 의사결정 권한이 가장 높은 경영자 개인의 특성 중 경영자의 능력이 이러한 관계를 설명할 수 있음을 밝힌 점에 공헌점이 있다.

주제어: 판매관리비 비율, 판매관리비, 기본분석(fundamental analysis), 경영자 능력

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- 저자 최세라는 현재 서울대학교 경영대학 회계학 박사과정에 재학 중이다. 이화여자대학교 경영학과를 졸업하고, 서울대학교 대학원에서 경영학 석사를 취득하였다. 주요연구분야는 경영진의 성과평가 및 보상, 원가행태 등이다.

- 저자 현지원은 현재 서울대학교 경영연구소 객원연구원으로, 서울대학교 경영학과를 졸업하고 동 대학원에서 경영학 석사와 박사학위를 취득하였다. 삼성전자에서 약 5년간 경영관리 업무를 담당하였고, 주요연구분야는 성과평가와 보상, 기업지배구조, 서술공시 등이다.

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