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Market Valuation of Intangible Assets from SG&A Expenditure: Evidence from Korean Market

한국시장의 판매 및 관리비로 인한 무형자산가치 평가 분석

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Abstract

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This paper examines whether the Korean stock market values the future value generating ability of SG&A expenditure. I find evidence that both KOSPI and KOSDAQ market recognize the future value creating ability of SG&A expenditure and show that SG&A future value exhibit positive and significant coefficients when estimating the annual stock return. I find that the trading strategy of holding a long position in the high SG&A level firms and holding a short position in the low SG&A level firms result in positive excess returns. Furthermore, I find that excess returns based on the level of SG&A expenditure may be more consistent with the risk explanation than the market mispricing explanation by showing that the SG&A factor loading has significant predictive power in estimating the future return and the excess return on the portfolios sorted by the SG&A level has consistent pattern over the subsequent periods.

Keyword: SG&A Expenditure, Intangible Asset, Market Valuation

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1. Introduction

In this paper, I investigate the stock market valuation of the intangible asset created by selling, general, and administrative (SG&A) expenditure (exclusive of research and development (R&D) and advertising expenditures) in the Korean market. SG&A costs comprise selling expenses and general and administrative expenses which are substantial part of total expenses for most firms. Selling expenditure includes costs of marketing, selling, and distribution of products and services. General and administrative expenditure comprises cost of managing and developing business. Current accounting measure of International Financial Reporting Standards (IFRS) requires full expensing of SG&A expenditure and implies that all economic benefits generated by SG&A expenditure occur in the same period. However, prior studies provide evidence that SG&A expenditure generates long-term future values that systematically vary across firms and industries (Banker, Huang, and Natarajan 2011; Chen, Lu, and Sougiannis 2012; Huson, Tian, Wiedman, and Wier 2012).

Current SG&A expenditure include many expenses that may create future value in subsequent periods. For example, product

quality enhancement, development in customer and employee satisfaction, promotion and brand development, investment in human capital and information technology, and enhancing distribution channel may enhance firm's financial performance and generate future value (Kaplan and Norton 1996; Brynjolfsson and Hitt 2000; Cleland and Bruno 1996; Ittner and Larcker 1998; Oh and Lim 2020). All these expenditures are components of SG&A expenditure that can potentially bring future benefits to the firms.

Prior research on the value of intangible assets has mainly focused on R&D, advertising expenditures, and entertainment expenses. (Woolridge 1988; Chan, Martin, and Kensinger 1990; Lev and Sougiannis 1996; Chan, Lakonishok, and Sougiannis 2001; Eberhart, Maxwell, and Siddique 2004; Han 2017; Choi 2007). However, to my knowledge, the stock market valuation of SG&A expenditure and future value generated by SG&A has not been examined in the Korean environment, even though SG&A expenditure comprises much more portion of the total assets than R&D and advertising expenditures. In my sample covering 16,093 KOSPI firm-year observations and 17,911 KOSDAQ firm-year observations from 1987 to 2021, SG&A averages about 12 percent of a company's total assets among the KOSPI firms and about 17

percent in the KOSDAQ firms, while R&D and advertising expenditure each exhibit average of 0.4 percent and 0.8 percent of total assets in KOSPI firms and 1.5 percent and 0.7 percent in KOSDAQ firms, respectively. Given that SG&A expenditure has an asset component, which generates the future value, the current accounting treatment of SG&A expenditure may lead to investors' under-valuation of SG&A.

I examine whether the investors recognize the intangible asset value generated from SG&A expenditure, since investors may fixate only on the reported numbers (Sloan 1996). I find that the contemporaneous stock market recognizes the future value-generating ability of SG&A expenditure. Based on a measure used in prior studies to estimate the future value generated by SG&A expenditure (Banker et al. 2011 and 2019; Chen et al. 2012; Huson et al. 2012), I find a positive and significant relationship between the annual stock return and future value generated by SG&A expenditure.

To further examine whether the stock market recognizes the future value-creating ability of SG&A, I examine the relationship between the cross-section of monthly stock returns by examining a trading strategy involving a long position in the high SG&A and

SG&A future value firms and holding a short position of the low SG&A and SG&A future value firms. I find that the long-short portfolio trading strategy based on the level of SG&A generates an annualized excess return of 13.2 percent among the KOSPI firms. Furthermore, firms with a high level of SG&A expenditure and SG&A future value are likely to be undervalued in the current period and experience positive excess returns in subsequent periods. In addition, due to uncertainty and difficulty of measurement of SG&A future value, such firms have higher risk and thus display positive excess returns in the future, compensating for the increased risk. Taken together, (1) investors may fail to fully recognize the asset value created by SG&A and underestimate the firm value in the current period (market mispricing explanation), or (2) high level of SG&A and SG&A future value increase uncertainty in estimating the long-term asset value (risk explanation).

To investigate whether subsequent excess returns with current level of SG&A and SG&A future value are due to market mispricing or risk, I conduct two tests. First, I examine whether SG&A related variables or SG&A related factor loadings have more predictive power in estimating the future returns (Hirshleifer, Hou, and Teoh 2012). I find that it is the SG&A related factor loadings, rather than

the current level of SG&A, which can predict the future returns. This evidence shows that excess return in SG&A sorted portfolios may be more consistent with the risk explanation rather than the market mispricing explanation. Second, I find that the excess returns earned on firms with low SG&A level persist over the subsequent periods, which is a pattern consistent with the risk explanation. Overall, I find that excess stock returns from the SG&A level may be more consistent with the risk explanation, rather than the market mispricing explanation.

This paper contributes to the literature in the following ways. First, it adds to the current literature on the market valuation of intangible assets in Korean market. Prior studies focus on R&D and advertising expenditure, and entertainment expenses (Woolridge 1988; Chan, Martin, and Kensinger 1990; Lev and Sougiannis 1996; Chan, Lakonishok, and Sougiannis 2001; Eberhart, Maxwell, Siddique 2004; Han 2017; Choi 2007). Unlike R&D and advertising expenditures which only has asset component, the unique feature of SG&A expenditure is that SG&A can be decomposed into the expense and asset components. Expense component of SG&A expenditure is the expenses that are required to sustain corporate operations and only creates current value. Asset component of

SG&A expenditure are investment expenditures which have potential to generate long-term asset value. This contrast enables a study to measure whether Korean market investors are able to distinguish such components and evaluate the future value generated by SG&A expenditure.

Second, this paper contributes to the literature on the impact of the future value-generating ability of SG&A expenditure. Prior studies show that executive compensation contracts incorporate the SG&A future value and SG&A costs stickiness have a positive relationship with SG&A future value and investors are able to partially recognize SG&A future value in the U.S. market (Banker et al. 2011 and 2019; Chen et al. 2012; Huson et al. 2012). To my knowledge, there have been no studies that examined the stock market valuation of the future value-generating ability of SG&A expenditure in the Korean environment. I find that the contemporaneous stock market recognizes the future value-creating ability of SG&A expenditure and SG&A future value exhibit a positive and significant association with the annual stock return. In addition, I find that the current level of SG&A and SG&A future value are positively related to the cross-section of monthly returns and find that a trading strategy of holding long-position in the

high-SG&A level firms and holding a short position in the low-SG&A level firms result in positive excess returns. In addition, I find evidence that such excess returns are more consistent with risk explanation than market mispricing explanation.

The remainder of this paper is structured as follows. Section II reviews prior literature and develops main hypotheses on the market valuation of SG&A expenditure. Section III describes the measurement of SG&A future value and descriptive statistics of sample firms. Section IV discusses the empirical results on the stock market valuation of SG&A. Section V presents an additional analysis. Section VI concludes the paper.

2. Hypothesis Development

I explore the stock market valuation of SG&A expenditure. SG&A expenditure includes variable costs that proportionally change along with the level of sales and fixed costs that do not change with sales volume (Anderson, Banker, and Janakiraman 2003; Anderson et al. 2007). Selling expenses, which are the variable costs that vary with sales amount, include sales commissions, delivery expenses, promotion materials, etc. General

and administrative costs, which are generally fixed costs that do not vary with the level of sales, include expenses such as management and worker salaries, rents, insurance, and costs of supporting each department ((Stickney, Brown, and Wahlen 2004). Prior studies show that SG&A expenditure not only has an expense portion, which is the required expenditure to sustain the corporation but also has asset portion which generates long-term future values that systematically vary across firms and industries (Banker et al. 2011 and 2019; Chen et al. 2012; Huson et al. 2012).

Prior studies suggest that SG&A expenditures other than advertising expenditure can create future value and enhance a firm's financial performance. Kaplan and Norton 1996 suggest that product quality enhancement, investments to increase customer and employee satisfaction, and expenses in learning and innovation generate intangible asset values that are associated with the firm's future financial performance but are not easily recognized by current accounting measures. Brynjolfsson and Hitt 2000 support that expenditures in developing IT department is positively related to future operating performance. Cleland and Bruno 1996 and Ittner and Larcker 1998 assert that developing employee training sessions

and pre-and post-sales customer support are positively associated with future financial performance as well.

Prior studies examining SG&A expenditure and firm value and performance in the Korean environment also present similar results supporting that SG&A can enhance a firm's future performance. Oh and Lim 2020 provide evidence that SG&A expenditure exhibit a positive association with firm value and performance in the distribution industry. Han 2017 shows that entertainment expense and advertising expense display a positive relationship with firm value enhancement and Choi, Hwang, and Park 2016 suggest that the degree of SG&A cost stickiness has a positive relationship with managerial ability, resulting in the increase of firm's performance.

Prior studies suggest that SG&A expenditure can be decomposed into expense component which only creates current value and asset component which creates long-term asset value. The future value of SG&A expenditure can be estimated by measuring the future operating profit that can be generated by the current SG&A expenditure in subsequent periods (Banker et al. 2011 and 2019; Chen et al. 2012; Huson et al. 2012). I propose that investors will recognize the future value generated by SG&A expenditure and predict that SG&A future value will have a positive

relationship with annual stock return. If investors recognize the future value-generating ability of SG&A, SG&A future value will have a positive and significant coefficient when explaining the annual stock return. On the other hand, if investors do not recognize the future value and only refer to SG&A expenditure as an expense, then the relationship would be negative or insignificant.

H1: Annual stock return will have positive association with SG&A future value.

A further question to examine the relationship between SG&A expenditure and stock return is to examine whether SG&A expenditure have positive association with monthly stock returns and investigate whether the trading strategy involving a long position in the high SG&A expenditure firms and holding a short position in the low SG&A expenditure firms will result in positive excess returns.

SG&A expenditure can create future values and two explanations can exist for explaining excess returns generated. First, the market mispricing explanation may assert that due to the full expensing rule of SG&A expense, accounting earnings tend to be lower for those firms with higher SG&A expenditures. Such firms will be understated during the current period and will

experience subsequent positive excess returns when the future value generated by current expenditures is realized and the investors correct the mis-valuation. At the same time, the future value generated by SG&A expenditure is recognized in the future and thus has increased uncertainty. Risk explanation asserts that firms with high SG&A expenditure levels will have positive excess returns due to an increase in risk and a corresponding rise in compensation. Consequently, I expect that the long-short portfolio strategy of holding a long position in the high SG&A level firms and a short position in the low SG&A level firms will result in positive excess return (Banker et al. 2019).

H2a: Long-short portfolio based on long position in high SG&A firms and short position in low SG&A firms will show positive excess return.

I also examine whether future excess returns are related to the future value generated from SG&A expenditure. Investors are more likely to misprice a firm's value because it is much more difficult to estimate how a firm's SG&A level will have an impact in the future. In addition, difficulty in estimation of future value will also result in an increase in uncertainty of estimating a firm's value. Therefore, I expect that the trading strategy of holding a long position in high

SGAFV firms and holding a short position in the low SGAFV firms will result in positive excess returns.

H2b: Long-short portfolio based on long position in high SGAFV firms and short position in low SGAFV firms will show positive excess return.

3. Measurement of SG&A Future Value and Descriptive Statistics

To construct the primary sample, I follow Banker, Huang, Natarajan, and Zhao (2019). I retrieve firm-year observations from 1987 to 2021 of KOSPI and KOSDAQ firms from the DataGuide 5.0 of FnGuide. I remove the following firm-year observations from the sample: (1) firm-year observations with missing total SG&A expenditure, total assets, operating income, or industry information, and (2) firm-year observations with negative SG&A expenditure (exclusive of R&D and advertising expenditure)[1]. Similar to Lev and Sougiannis (1996) and Banker et al. (2011), I require at least three firms in each four-digit Korean Standard Industry Classification

[1] Missing R&D and advertising expenditures are set to zero

10th version (KSIC) to estimate the *Predicted SGA* (an instrument for the actual SG&A) and at least five firms in each two-digit KSIC and year combination to estimate the optimal lag structure for each industry[2]. To estimate the firm-year specific SG&A future value, I require at least seven non-missing observations for each firm-year rolling window. Finally, I remove firm-year observations with the missing number of shares and stock price information at the beginning and end of the fiscal year. The final sample includes 9,306 primary samples and 7,349 non-negative SG&A future value KOSPI firm-year observations. KOSDAQ firm sample includes 6,267 primary samples and 4,524 non-negative SG&A future value samples.

Panel A of Table 1 presents descriptive statistics of KOSPI firms from 1987 to 2021. Sales, total assets, and SG&A expenditure all exhibit a wide range of variations. R&D and advertising expenditures are very small compared to SG&A expenditure. Mean (median) SG&A expenditure is ₩227,295 (₩27,195) in millions while R&D and advertising expenditures are each ₩18,197 (₩24) and ₩16,663 (₩296) in millions. When I examine SG&A, R&D,

[2] To obtain the instruments for actual SG&A, we require at least three firms in each four-digit KSIC industry code. If there are less than three firms in each four-digit industry and year combination, the industry is redefined at the three-digit KSIC code level.

Table 1
Descriptive Statistics of Firm Characteristics

Panel A and C shows characteristics of firm-year observations of KOSPI and KOSDAQ firms from 1987 to 2021. The predicted SG&A value (Predicted SGA/TA) is estimated form the following model:

$$\left(\frac{SGA}{TA}\right)_{i,t} = a + b\left(\frac{SGA}{TA}\ Industry\right)_{i,t} + \mu_{i,t}$$

The dependent variable is the SGA (deflated by total assets) and the independent variable is the average SGA (deflated by total assets) of the other firms in its four-digit KSIC code industry. Panel B and D shows the distribution of variables used in the valuation regression analysis. Δ denotes annual change from year t-1 to t. All variables are defined in Appendix A.

Panel A: Characteristics of KOSPI Firms from 1987 to 2021

	Mean	STD	Q1	Median	Q3
Sale (₩million)	1,784,311	8,057,596	84,897	217,527	735,259
TA (₩million)	4,859,811	25,792,434	109,588	290,435	1,000,104
SGA (₩million)	227,295	1,116,751	9,613	27,143	93,254
RD(₩million)	18,197	343,534	0	24	1,050
ADV (₩million)	16,663	142,702	27	296	3,561
OI^B/TA	0.176	0.157	0.083	0.143	0.226
OI/TA	0.172	0.154	0.081	0.140	0.220
SGA/TA	0.120	0.134	0.051	0.087	0.146
RD/TA	0.004	0.011	0.000	0.000	0.003
ADV/TA	0.008	0.020	0.000	0.001	0.005
Predicted SGA/TA	0.120	0.082	0.067	0.099	0.154

Panel B: Descriptive Statistics of Stock Prices, Earnings, and Expenditure of KOSPI stocks

Primary Sample

	N	Mean	STD	Q1	Median	Q3
P_t/P_{t-1}	9,306	1.148	0.618	0.773	1.014	1.348
$OIPS_t/P_{t-1}$	9,306	4.217	10.218	0.286	0.714	2.450
$SGAPS_t/P_{t-1}$	9,306	2.872	7.094	0.183	0.489	1.759
$RDPS_t/P_{t-1}$	9,306	0.056	0.205	0.000	0.001	0.020
$ADPS_t/P_{t-1}$	9,306	0.164	0.621	0.001	0.006	0.040
SGA_t/TA_t	9,306	0.116	0.096	0.053	0.087	0.144

Non-Negative SG&A Future Value

	N	Mean	STD	Q1	Median	Q3
$SGAFV_t$	7,349	0.369	1.130	0.000	0.000	0.197
$\$SGAFV_t$	7,349	44,715.13	162,181.11	0.000	0.000	7,421.2
$\$SGAFV_t/Ta_t$	7,349	0.048	0.188	0.000	0.000	0.014
SGA_t/TA_{t-1}	7,349	0.117	0.100	0.053	0.087	0.144
P_t/P_{t-1}	7,349	1.141	0.604	0.773	1.010	1.338
$OIPS_t/P_{t-1}$	7,349	4.029	9.927	0.287	0.697	2.262
$SGAPS_t/P_{t-1}$	7,349	2.761	6.851	0.180	0.466	1.611
$SGAFV_t/P_{t-1}$	7,349	0.000	0.001	0.000	0.000	0.000
$RDPS_t/P_{t-1}$	7,349	0.051	0.188	0.000	0.001	0.018
$ADPS_t/P_{t-1}$	7,349	0.142	0.540	0.001	0.006	0.038
$\Delta OIPS_t/P_{t-1}$	7,349	-2.281	8.343	-0.607	-0.041	0.163
$\Delta SGAPS_t/P_{t-1}$	7,349	-1.525	5.649	-0.327	-0.015	0.091
$\Delta RDPS_t/P_{t-1}$	7,349	-0.037	0.136	-0.003	0.000	0.000
$\Delta ADPS_t/P_{t-1}$	7,349	-0.104	0.369	-0.008	0.000	0.001

(continued on next page)

Panel C: Characteristics of KOSDAQ Firms from 1987 to 2021

	Mean	STD	Q1	Median	Q3
Sale (₩million)	114,869	259,480	22,135	49,524	112,581
TA (₩million)	142,217	424,175	33,988	64,988	125,382
SGA (₩million)	18,654	91,324	3,760	7,202	14,230
RD(₩million)	1,396	4,190	0	184	1,200
ADV (₩million)	1,027	7,982	5	47	245
OI^B/TA	0.200	0.244	0.089	0.162	0.256
OI/TA	0.194	0.240	0.085	0.157	0.250
SGA/TA	0.167	0.358	0.069	0.108	0.179
RD/TA	0.015	0.035	0.000	0.003	0.018
ADV/TA	0.007	0.026	0.000	0.001	0.004
Predicted SGA/TA	0.167	0.135	0.102	0.131	0.197

Panel D: Descriptive Statistics of Stock Prices, Earnings, and Expenditure of KOSDAQ stocks

Primary Sample

	N	Mean	STD	Q1	Median	Q3
P_t/P_{t-1}	6,267	1.129	0.660	0.735	0.985	1.320
$OIPS_t/P_{t-1}$	6,267	0.689	1.776	0.088	0.254	0.564
$SGAPS_t/P_{t-1}$	6,267	0.483	1.215	0.076	0.173	0.391
$RDPS_t/P_{t-1}$	6,267	0.023	0.046	0.000	0.003	0.024
$ADPS_t/P_{t-1}$	6,267	0.010	0.028	0.000	0.001	0.005
SGA_t/TA_t	6,267	0.152	0.152	0.069	0.105	0.171

Non-Negative SG&A Future Value

	N	Mean	STD	Q1	Median	Q3
$SGAFV_t$	4,524	0.716	2.219	0.000	0.000	0.409
$\$SGAFV_t$	4,524	12,146.05	41,634.46	0.000	0.000	4,162.93
$\$SGAFV_t/Ta_t$	4,524	0.108	0.365	0.000	0.000	0.041
SGA_t/TA_{t-1}	4,524	0.160	0.163	0.070	0.110	0.180
P_t/P_{t-1}	4,524	1.137	0.669	0.731	0.985	1.332
$OIPS_t/P_{t-1}$	4,524	0.734	1.862	0.089	0.257	0.608
$SGAPS_t/P_{t-1}$	4,524	0.515	1.250	0.079	0.181	0.417
$SGAFV_t/P_{t-1}$	4,524	0.000	0.001	0.000	0.000	0.000
$RDPS_t/P_{t-1}$	4,524	0.023	0.048	0.000	0.003	0.023
$ADPS_t/P_{t-1}$	4,524	0.011	0.029	0.000	0.001	0.006
$\Delta OIPS_t/P_{t-1}$	4,524	-0.921	1.938	-0.459	-0.042	0.042
$\Delta SGAPS_t/P_{t-1}$	4,524	-0.586	1.239	-0.279	-0.019	0.028
$\Delta RDPS_t/P_{t-1}$	4,524	-0.025	0.057	-0.019	0.000	0.000
$\Delta ADPS_t/P_{t-1}$	4,524	-0.014	0.031	-0.007	0.000	0.000

and advertising expenditure deflated by total assets, SG&A expenditure's mean (median) is 0.120 (0.087) while R&D and advertising expenditure's mean (median) is 0.004 (0.000) and 0.008 (0.001) respectively.

Following Banker et al. (2019), I use both the current level of SG&A expenditure and SG&A future value to capture the future value created by SG&A expenditures. The current level of SG&A expenditure has the advantage that it is a direct measure of SG&A value and is less subject to any estimation error rising from predicting the SG&A future value. The disadvantage of using the current SG&A expenditure level is that it does not account for the long-term effect of current SG&A expenditure on a firm's future income. In contrast with the current level of SG&A, SG&A future value can recognize the long-term effect by capturing the cumulative effect of current expenditure on future income. However, while measuring the future value of SG&A, there might be noise included while modeling for the future value, resulting in biased observations. Because both methods have advantages and disadvantages, I use both measures to capture the future asset value generated by SG&A.

I use the following two-step procedures to estimate firm-year specific SG&A future value. First, I obtain the optimal SG&A lag structure for each two-digit KSIC industry by estimating the following equation for each industry.

$$\left(\frac{OI^B}{TA}\right)_{i,t} = \alpha_0 + \alpha_1 \left(\frac{1}{TA}\right)_{i,t-1} + \sum_{k=0}^{n} \alpha_{2,k} \left(\frac{SGA}{TA}\right)_{i,t-k} + \alpha_3 \left(\frac{RD}{TA}\right)_{i,t} + \alpha_4 \left(\frac{ADV}{TA}\right)_{i,t} + \varepsilon_{i,t} \quad (1)$$

OI^B is operating income before depreciation, exclusive of SG&A, R&D, and advertising expenditures. TA is total assets. SGA is SG&A expenditure excluding R&D and advertising expenditures. RD and AD are research and development (R&D) and advertising expenditures, respectively[3].

Equation (1) may raise a simultaneity issue when an external shock affects both the dependent variable, operating income, and the independent variable, SGA. For example, when the demand for a firm's products faces sudden increases, earnings can increase due to the demand increase. However, to fulfill all demands, SG&A expenditure, such as increased salaries or enhancing factory facilities, may also increase. In such cases, SG&A expenditure cannot be considered as an exogenous variable and OLS regression will result in inconsistent estimates. In order to address such simultaneity issue, I use industry SG&A exclusive of R&D and advertising expenditures (deflated by total assets) as an instrument variable. Industry SG&A is suitable as an instrument variable

[3] I use total asset rather than sales to deflate the variables because SG&A can contribute to increase in sales, and deflating SG&A by sales will remove some of the SG&A effect in increasing the earnings (Banker et al 2019).

because it is highly correlated with the firm-level SG&A expenditure but it is not affected by firm-specific external shocks (such as sudden demand increase) (Lev and Sougiannis 1996; Banker et al. 2019). For each year and two-digit KSIC industry, SGA (deflated by total assets) is regressed on the average SGA (deflated by total assets) of the other firms in its four-digit KSIC industry.

$$\left(\frac{SGA}{TA}\right)_{i,t} = a + b\left(\frac{SGA}{TA}\ Industry\right)_{i,t} + \mu_{i,t} \quad (2)$$

After estimating the predicted value of $(SGA/TA)_{i,t}$ from Equation (2), I estimate Equation (1) by substituting the actual $(SGA/TA)_{i,t}$ with the predicted value of $(SGA/TA)_{i,t}$. Estimation of Equation (1) involves estimating coefficients of current and past SG&A expenditure on current operating income. I use an unrestricted finite distributed lag model to estimate the number of lags and the coefficients on each lag of SG&A (Hanlon, Rajgopal, and Shevlin 2003). After estimating Equation (1), I keep the number of lags of SG&A for which coefficients $\alpha_{2,1}$ through $\alpha_{2,7}$ are positive and significant. Panel A show that the mean (median) value of predicted $(SGA/TA)_{i,t}$ for KOSPI firms is 0.120 (0.099) while Panel C show that the mean (median) value for KOSDAQ firms is 0.167 (0.131).

Second, once the optimal lag structure for each two-digit KSIC industry is obtained from the above procedure, I fix the optimal lag structure for all firms in the industry. After fixing the lag structure, I estimate firm-year specific SG&A future value using the instrument variable (industry average SG&A of other firms in its four-digit KSIC industry and year combination). Equation (1) is estimated on a firm-by-firm basis using a rolling window of time series data from 1987 to 2021. For example, to estimate SG&A future value of a firm *i* in 2010, I use the time series data of firm *i* from 1987 to 2010. SG&A future value (SGAFV) is the sum of discounted coefficients on past SG&A, $\left(\sum_{k=1}^{n} \frac{\alpha_{2,k}}{(1.1)^k}\right)$. SGAFV implies the total effect of ₩1 spending of current SG&A expenditure on the future operating income. In addition to SGAFV, I also construct a dollar value measure of SG&A future value ($SGAFV), defined as the sum of discounted coefficients on past SG&A times the current level of SGA $\left(\sum_{k=1}^{n} \frac{\alpha_{2,k}}{(1.1)^k} \text{ x } \mathrm{SGA}_t\right)$. $SGAFV captures the total amount of future operating income generated by the current SG&A expenditure.

Panel B of Table 1 presents the descriptive statistics of stock prices, earnings, SG&A expenditure, and firm-specific SGAFV and

$SGAFV of primary KOSPI sample firms[4]. Mean (median) value of $(SGA/TA)_{i,t}$ is 0.116 (0.087). For the subsample of firms that have non-negative SG&A future value, the mean (median) value of SGAFV and $SGAFV are 0.369 (0.000) and 44,715 (0.000), respectively. SGAFV and $SGAFV distribution indicate that more than half of the firms have zero SG&A future value implying that current SG&A expenditures do not have an impact on the future operating income and only have current value.

Panel C and D each present the descriptive statistics of the KOSDAQ firms. The KOSDAQ firms display a much smaller magnitude of sales, total assets, and SG&A expenditure compared to the KOSPI firms but still exhibit a large range of variation among the variables. The KOSDAQ firm $(SGA/TA)_{i,t}$ has mean (median) value of 0.152 (0.105). SGAFV and $SGAFV mean (median) values are 0.716 (0.000) and 12,146 (0.000). The KOSDAQ firms exhibit larger mean values of the characteristics but also show larger variance compared to KOSPI firms.

Table 2 presents correlation matrices of stock price, earnings, SG&A, R&D, advertising, and firm-year specific SG&A future value variables. Panel A show that the KOSPI firms display a positive

[4] To mitigate biases rising from outliers, I winsorize all variables by year at the top and bottom 1 percent levels.

relationship between the operating income ($OIPS_t/P_{t-1}$) and the current SG&A expenditure level ($SGAPS_t/P_{t-1}$). The current stock price (P_t/P_{t-1}) also shows a positive correlation with the current SG&A level. The subsample of firms with non-negative SG&A future level also exhibits a positive relationship between operating income and current stock price with current SG&A level.

In addition, SG&A future value variables ($SGAFV_t/P_{t-1}$ and $\$SGAFV_t/TA_t$) also display positive correlation with operating income and stock price. In contrast to the KOSPI firms, the KOSDAQ firms display varying correlations among the firm-year specific SG&A variables and stock price and operating income. Current level of SG&A expenditure exhibits negative relationship with price but positive correlation with operating income. Overall, the correlation matrices suggest that KOSPI investors seem to incorporate some of the information related to future value-creating ability of SG&A into contemporaneous stock prices.

Table 2

Pearson / Spearman Correlation matrix

Panel A and C presents a correlation matrix of stock price, earnings, SG&A, R&D, and advertising expenditures for KOSPI and KOSDAQ sample firm-year observations. Panel B and D presents a correlation matrix for sample firms with non-negative SG&A future value. Pearson (Spearman) correlation coefficients are presented in the lower left (upper right).
Variable definitions are included in Appendix A

Panel A: Correlations Among Variables in the KOSPI Primary Sample

	1	2	3	4	5	6
1. P_t/P_{t-1}	-	0.26	0.20	0.08	0.12	0.04
2. $OIPS_t/P_{t-1}$	0.15	-	0.94	0.17	0.62	0.31
3. $SGAPS_t/P_{t-1}$	0.12	0.97	-	0.16	0.61	0.38
4. $RDPS_t/P_{t-1}$	0.08	0.43	0.37	-	0.28	0.17
5. $ADPS_t/P_{t-1}$	0.06	0.67	0.63	0.39	-	0.41
6. SGA_t/TA_t	0.03	0.20	0.23	0.11	0.27	-

Panel B: Correlations Among Variables in the KOSPI Subsample with Non-Negative SG&A Future Value

	1	2	3	4	5	6	7	8	9	10	11	12
1. P_t/P_{t-1}	-	0.25	0.19	0.04	0.08	0.10	0.03	0.02	0.22	0.16	0.13	0.14
2. $OIPS_t/P_{t-1}$	0.13	-	0.94	0.04	0.17	0.61	0.30	0.02	0.11	0.07	0.04	0.04
3. $SGAPS_t/P_{t-1}$	0.11	0.97	-	0.05	0.15	0.61	0.38	0.03	0.08	0.10	0.05	0.05
4. $SGAFV_t/P_{t-1}$	0.08	0.20	0.17	-	0.10	-0.01	-0.03	0.98	0.06	0.06	0.08	0.06
5. $RDPS_t/P_{t-1}$	0.07	0.44	0.40	0.16	-	0.26	0.15	0.11	-0.01	0.00	0.09	0.01
6. $ADPS_t/P_{t-1}$	0.05	0.66	0.63	0.21	0.38	-	0.41	-0.01	0.02	0.02	0.03	0.03
7. SGA_t/TA_{t-1}	0.02	0.19	0.22	0.08	0.09	0.27	-	0.02	-0.01	0.01	0.01	-0.03
8. $SGAFV_t/Ta_t$	0.02	0.09	0.08	0.74	0.12	0.18	0.23	-	0.06	0.06	0.08	0.06
9. $\Delta OIPS_t/P_{t-1}$	0.15	0.11	0.10	0.07	0.01	0.02	-0.02	0.05	-	0.85	0.50	0.63
10. $\Delta SGAPS_t/P_{t-1}$	0.13	0.10	0.12	0.07	0.01	0.02	-0.01	0.05	0.97	-	0.53	0.65
11. $\Delta RDPS_t/P_{t-1}$	0.12	0.02	0.03	0.05	0.07	0.00	-0.01	0.06	0.82	0.82	-	0.48
12. $\Delta ADPS_t/P_{t-1}$	0.12	0.03	0.03	0.04	0.00	0.02	-0.04	0.04	0.88	0.87	0.83	-

Panel C: Correlations Among Variables in the KOSDAQ Primary Sample

	1	2	3	4	5	6
1. P_t/P_{t-1}	-	0.35	0.27	0.09	0.14	-0.07
2. $OIPS_t/P_{t-1}$	0.13	-	0.88	0.21	0.43	0.14
3. $SGAPS_t/P_{t-1}$	0.10	0.96	-	0.18	0.46	0.29
4. $RDPS_t/P_{t-1}$	0.14	0.16	0.15	-	0.08	0.07
5. $ADPS_t/P_{t-1}$	0.08	0.48	0.47	0.10	-	0.37
6. SGA_t/TA_t	-0.04	0.07	0.14	-0.03	0.25	-

(continued on next page)

Panel D: Correlations Among Variables in the KOSDAQ Subsample with Non-Negative SG&A Future Value

	1	2	3	4	5	6	7	8	9	10	11	12
1. P_t/P_{t-1}	-	0.34	0.27	0.02	0.09	0.15	-0.06	-0.01	0.15	0.10	0.09	0.08
2. $OIPS_t/P_{t-1}$	0.13	-	0.88	0.01	0.19	0.47	0.15	-0.02	0.09	0.02	0.04	0.01
3. $SGAPS_t/P_{t-1}$	0.11	0.96	-	0.03	0.15	0.49	0.29	-0.01	0.05	0.07	0.06	0.02
4. $SGAFV_t/P_{t-1}$	0.07	0.08	0.07	-	0.05	-0.08	-0.02	0.97	0.20	0.21	0.19	0.21
5. $RDPS_t/P_{t-1}$	0.14	0.20	0.18	0.08	-	0.09	0.05	0.04	0.00	0.00	0.03	-0.02
6. $ADPS_t/P_{t-1}$	0.08	0.46	0.47	0.02	0.14	-	0.38	-0.07	0.01	0.02	0.03	0.03
7. SGA_t/TA_{t-1}	-0.03	0.07	0.15	0.00	-0.03	0.27	-	0.06	0.01	0.03	0.00	-0.02
8. $SGAFV_t/Ta_t$	0.00	-0.01	-0.01	0.70	0.04	-0.02	0.20	-	0.19	0.19	0.17	0.20
9. $\Delta OIPS_t/P_{t-1}$	0.05	-0.03	-0.03	0.08	-0.04	-0.01	0.00	0.07	-	0.85	0.64	0.65
10. $\Delta SGAPS_t/P_{t-1}$	0.04	-0.04	-0.04	0.08	-0.04	-0.01	0.00	0.07	0.98	-	0.67	0.67
11. $\Delta RDPS_t/P_{t-1}$	0.06	0.00	0.00	0.08	0.03	0.00	0.00	0.06	0.89	0.89	-	0.57
12. $\Delta ADPS_t/P_{t-1}$	0.03	-0.04	-0.03	0.06	-0.05	0.00	-0.01	0.07	0.91	0.92	0.86	-

4. Stock Market Valuation of SG&A

4.1 Contemporaneous Stock Market Annual Return and SG&A

I test H1 by estimating the relation between contemporaneous stock market annual return and SG&A future value using the following model (Kothari and Zimmerman 1995):

$$P_{i,t}/P_{i,t-1} = \Upsilon_0 + \Upsilon_1 (OIPS_{i,t}/P_{i,t-1}) + \Upsilon_2(SGAPS_{i,t}/P_{i,t-1}) + \Upsilon_3 (SGAFV_{i,t}/P_{i,t-1}) + \Upsilon_4 (RDPS_{i,t}/P_{i,t-1}) + \Upsilon_5 (ADPS_{i,t}/P_{i,t-1}) + \varepsilon_{i,t} \quad (3)$$

where P_t is the contemporaneous stock price at the fiscal year−end of year *t*. OIPS is operating income after depreciation per share

exclusive of SG&A, R&D, and advertising expenditures. SGAPS, RDPS, and ADPS each represents SG&A expenditure (exclusive of R&D and advertising expenditures), R&D, and advertising expenditures per share. SGAFV is the SG&A future value as estimated in Section III. All variables are deflated by the beginning of the year stock price to mitigate the potential biases due to scale differences across firms (Kothari and Zimmerman 1995).

Table 3 presents the result of testing H1 on the relation between contemporaneous stock market annual return and SGAFV. The first column of Panel A shows that the KOSPI market recognizes current SG&A expenditure as an operating expense, placing a negative and significant coefficient on SGAPS (coefficient = −0.03, t−value = −9.413). Column (2) of Panel A shows that SGAPS coefficient stays negative and significant (coefficient = −0.03, t−value = −9.361) when regressed along with SGAFV. Consistent with Banker et al. 2019, SGAFV exhibit insignificant valuation coefficient (coefficient = 0.57, t−value = 0.713) and suggest that negative SG&A future value represents noise. Following Banker et al. 2011 and 2019 to mitigate the effect of measurement errors in SGAFV, I focus on the subsample of firms with non−negative SGAFV. Column (3) shows similar coefficients

and significance level with full sample results when estimating the valuation coefficients with operating income and current SG&A level, suggesting that removing firm-year observations with negative SG&A future value does not cause any systematic biases in the firm characteristics. Column (4) shows that the valuation coefficient of SGAFV is positive and significant. (coefficient = 0.39, t-value = 2.81). Column (5) shows that the SGAFV coefficient stays positive and significant when estimated along with the current level of SG&A expenditure (coefficient = 0.35, t-value = 2.566).

Panel B presents the result of testing the relation between contemporaneous stock market annual return and SGAFV among the KOSDAQ firms and generally shows similar results with KOSPI firms. Full sample with negative SGAFV observations consistently exhibits insignificant coefficient (coefficient = 0.05 and t-value = 0.522) in column (2) of panel B. Column (4) show positive valuation coefficient of SGAFV (coefficient = 0.26, t-value = 2.91) and Column (5) exhibit that SGAFV coefficient stay positive and significant when SGAFV is estimated along with the current level of SG&A expenditure (coefficient = 0.26 and t-value = 2.773). Overall, Table 3 provides strong support for H1, suggesting that investors seem to recognize the future value-generating ability of

Table 3
Contemporaneous Market Valuation of SG&A Expenditure

***, **, * Represent significance at the 1 percent, 5 percent, and 10 percent levels, respectively.
This table presents results of pooled regression of contemporaneous stock price on SG&A expenditure of KOSPI and KOSDAQ firms from 1987 to 2021. Columns (1) and (2) presents results for the full sample. Columns (3) through (5) present results for sample for firm-year observations with non-negative SG&A future value. P_t is the contemporaneous price exclusive of stock dividends and stock splits. P_{t-1} is the stock price at the fiscal year-end of year t-1. OIPS, SGAPS, RPDS, ADPS, and stock prices are adjusted for stock splits and stock dividends. t-statistics are based on robust standard errors clustered by firm and year. Industry and year fixed effects are included in the regressions. Coefficients for industry and year dummies are not reported.
All other variables are defined in Appendix A.

Panel A: KOSPI Stocks Market Valuation of SG&A Expenditure

Dependent Variable: P_t/P_{t-1}

	Full Sample		**Non-Negative SG&A Future Value**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
$OIPS_t/P_{t-1}$	0.03***	0.03***	0.03***	0.01***	0.03***
	(13.595)	(13.562)	(10.034)	(5.58)	(9.09)
$SGAPS_t/P_{t-1}$	-0.03***	-0.03***	-0.03***		-0.03***
	(-9.413)	(-9.361)	(-8.858)		(-7.905)
$SGAFV_t/P_{t-1}$		0.57		0.39***	0.35**
		(0.713)		(2.81)	(2.566)
$RDPS_t/P_{t-1}$	-0.06*	-0.06*	-0.07*	-0.05	-0.08*
	(-1.808)	(-1.835)	(-1.744)	(-1.278)	(-1.904)
$ADPS_t/P_{t-1}$	-0.05***	-0.05***	-0.06***	-0.06**	-0.06***
	(-2.706)	(-2.71)	(-2.638)	(-2.423)	(-2.833)
Number of Obs.	9,306	9,306	7,349	7,349	7,349
Adj. R^2	2.80%	2.81%	2.72%	1.89%	2.96%

(continued on next page)

Panel B: KOSDAQ Stocks Market Valuation of SG&A Expenditure

Dependent Variable: P_t/P_{t-1}

	Full Sample		**Non-Negative SG&A Future Value**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
$OIPS_t/P_{t-1}$	0.11***	0.11***	0.1***	0.02**	0.1***
	(3.39)	(3.385)	(3.273)	(2.27)	(3.15)
$SGAPS_t/P_{t-1}$	-0.14***	-0.14***	-0.12***		-0.12***
	(-3.124)	(-3.114)	(-2.829)		(-2.773)
$SGAFV_t/P_{t-1}$		0.05		0.26***	0.26***
		(0.522)		(2.91)	(2.773)
$RDPS_t/P_{t-1}$	1.47***	1.47***	1.42***	1.43***	1.4***
	(5.501)	(5.511)	(5.564)	(5.273)	(5.413)
$ADPS_t/P_{t-1}$	0.69*	0.69*	0.83**	0.68*	0.82**
	(1.847)	(1.838)	(2.31)	(1.901)	(2.225)
Number of Obs.	6,267	6,267	4,524	4,524	4,524
Adj. R^2	2.79%	2.80%	2.81%	2.60%	3.07%

the SG&A expenditure and the SG&A future value have a positive relationship with the contemporaneous annual stock return for both KOSPI and KOSDAQ firms.

4.2 Future Excess Returns and SG&A

To further examine the excess returns earned on SG&A portfolios in the subsequent period, I adopt the Fama-French five-factor asset pricing model commonly used in the finance literature (Fama and French 2015). Following Banker et al. 2019, since the five-factor model does not control for other effects on returns, such as effects of momentum, stock issues, asset growth, etc., I also use the cross-sectional returns tests (Fama and French 1992; Fama and French 2008) and control for other effects that may potentially correlate with the SG&A effect in section V.

I examine excess returns earned on the portfolios sorted by the current SG&A expenditure level and the SG&A future value and investigate whether the trading strategy of holding high SG&A level firms in a long position and holding the low SG&A level firms in a short position will result in positive excess return. For each sorting variable, Table 4 reports the portfolio's value-weighted average excess returns, capital asset pricing model (CAPM) alphas, and the Fama-French three-factor and five-factor model alphas. Portfolios are rebalanced annually at the end of June of each year t+1. I obtain monthly excess returns using the Fama and French (2015) five-factor asset pricing model:

$$R_{p\tau} - R_{f\tau} = a + b(R_{m\tau} - R_{f\tau}) + sSMB_{\tau} + hHML_{\tau} + rRMW_{\tau} + cCMA_{\tau} + \varepsilon_{p\tau} \quad (4)$$

The Fama and French (2015) five factors are constructed using independent 2 x 3 sorts based on the size and other firm characteristics, such as book-to-market, operating profitability, and investment. $R_{p\tau}$ is the monthly return on portfolio p in calendar month τ. $R_{f\tau}$ is the monetary stabilization bond 364 days return converted into monthly rate. $R_{m\tau}$ is the KOSPI value-weighted monthly return. SMB_{τ} is the average return on the nine small stock portfolios minus the average return on the nine big stock portfolios. HML_{τ} is the average return of two high book-to-market portfolios (value portfolios) minus the two low book-to-market portfolios (growth portfolios). RMW_{τ} is the average return on two robust operating profitability portfolios minus two weak operating profitability portfolios. CMA_{τ} is the average return on two conservative investment portfolios minus two aggressive investment portfolios. At the end of June of each year t+1, I form portfolios by assigning firms into deciles based on the level of SG&A (deflated by total assets) in year t. H2a predicts that the trading strategy with long position in firms that exhibit high current SG&A level and short position in firms that show low current SG&A level will show positive excess returns. I assign all firm-year

observations with non-negative SGAFV to test H2b, predicting that the long-short portfolio trading strategy based on high and low SG&A future level will result in positive excess returns.

Panel A of Table 4 presents SG&A (deflated by total assets) and SGAFV sorted portfolios of the KOSPI firms. I find that the highest SG&A portfolios generate a positive and significant excess return and CAPM and Fama French three-factor alphas. When portfolios are evaluated using the five-factor model, the highest (SGA/TA) portfolio lose its significance. However, portfolios with the lowest (SGA/TA) level show negative and significant returns, resulting in positive and significant returns between the mean excess return earned on the difference between the two extreme portfolios (alpha = 0.011, t-value = 2.85).

Portfolios sorted by SGAFV also display a similar pattern with portfolios sorted by (SGA/TA). The highest SGAFV portfolio exhibits significant excess return and CAPM alpha but lose its significance when three-factor and five-factor models are used. However, the mean excess returns between the highest SGAFV portfolio and the lowest SGAFV portfolio exhibit a positive and significant relationship for both three-factor and five-factor models (alphas = 0.011 and 0.009, t-value = 2.17 and 1.9).

Table 4
Returns on Portfolios sorted by SGA/TA and SGAFV

*****, **, *** Represent significance at the 1 percent, 5 percent, and 10 percent, respectively.

At the end of June of each year t+1, portfolios are formed by assigning firms into deciles based on SGA/TA and SGAFV. SGA/TA and SGAFV are measured at each firm's latest fiscal year ending in calendar year t. Monthly excess returns, Capital asset pricing model, Fama and French three factor and five factor models and corresponding t-statistics are obtained.

Fama and French (2015) five-factor asset pricing model is following:

$$R_{p\tau} - R_{f\tau} = a + b\left(R_{m\tau} - R_{f\tau}\right) + sSMB_{\tau} + hHML_{\tau} + rRMW_{\tau} + cCMA_{\tau} + \varepsilon_{p\tau}$$

The Fama and French (2015) five factors are constructed using independent 2 x 3 sorts based on size and other firm characteristics, such as book-to-market, operating profitability, and investment. $R_{p\tau}$ is the monthly return on portfolio p in calendar month τ. $R_{f\tau}$ is monetary stabilization bond 364 days return converted into monthly rate. $R_{m\tau}$ is the KOSPI value-weighted monthly return. SMB_{τ} is the average return on the nine small stock portfolios minus the average return on the nine big stock portfolios. HML_{τ} is the average return of two high book-to-market portfolios (value portfolios) minus the two low book-to-market portfolios (growth portfolios). RMW_{τ} is the average return on two robust operating profitability portfolios minus two weak operating profitability portfolios. CMA_{τ} is the average return on two conservative investment portfolios minus two aggressive investment portfolios. At the end of June of each year t+1, I form portfolios by assigning firms into deciles based on the level of SGA/TA (SGAFV) in year t.

Panel A: KOSPI Stocks sorted by SGA/TA and SGAFV

Portfolios sorted by SGA/TA

Portfolio	Excess return	α		
		CAPM	FF3	FF5
	Monthly excess returns and alphas			
1 (Low)	0.009	0.001	-0.008	-0.006
2	0.011	0.002	-0.004	-0.003
3	0.013	0.004	-0.002	-0.001
4	0.016	0.008	0.002	0.003
5	0.014	0.006	0.001	0.002
6	0.013	0.006	0.002	0.001
7	0.013	0.006	0.001	0.001
8	0.016	0.009	0.005	0.005
9	0.012	0.005	0.001	0.001
10 (High)	0.016	0.009	0.005	0.004
High - Low	0.007	0.008	0.013	0.011
		t-values		
1 (Low)	1.38	0.2	-2.91	-2.33
2	1.85	0.72	-1.92	-1.57
3	2.15	1.27	-0.75	-0.34
4	2.76	2.27	0.9	1.41
5	2.41	1.66	-0.08	-0.05
6	2.36	1.61	-0.03	0.29
7	2.47	1.79	0.06	0.37
8	2.99	2.65	2.09	2.17
9	2.28	1.49	0.63	0.36
10 (High)	2.93	2.41	1.66	1.51
High - Low	1.8	2.09	3.37	2.85

Portfolios sorted by SGAFV

Portfolio	Excess return	α		
		CAPM	FF3	FF5
	Monthly excess returns and alphas			
1 (Low)	0.01	0.001	-0.005	-0.005
2	0.009	0.001	-0.008	-0.006
3	0.013	0.004	-0.001	0.002
4	0.023	0.014	0.006	0.007
5	0.019	0.008	-0.001	0.001
6	0.01	0.002	-0.005	-0.004
7	0.012	0.002	-0.005	-0.004
8	0.014	0.006	0.003	0.003
9	0.014	0.007	0.003	0.003
10 (High)	0.018	0.011	0.005	0.004
High - Low	0.008	0.009	0.011	0.009
		t-values		
1 (Low)	1.52	0.31	-1.36	-1.34
2	1.22	0.15	-1.73	-1.42
3	1.85	0.88	-0.35	0.11
4	2.75	2.12	1.02	1.23
5	2.09	1.21	-0.14	0.15
6	1.51	0.47	-1.17	-0.92
7	1.58	0.39	-1.1	-0.83
8	2.27	1.45	0.73	0.83
9	2.2	1.39	0.64	0.71
10 (High)	2.63	1.97	1.19	0.91
High - Low	1.5	1.86	2.17	1.9

(continued on next page)

Panel B: KOSDAQ Stocks sorted by SGA/TA and SGAFV

Portfolios sorted by SGA/TA					Portfolios sorted by SGAFV				
Portfolio	Excess return	α			Portfolio	Excess return	α		
		CAPM	FF3	FF5			CAPM	FF3	FF5
	Monthly excess returns and alphas					Monthly excess returns and alphas			
1 (Low)	0.02	0.014	0.009	0.009	1 (Low)	0.012	0.006	0.002	0
2	0.011	0.003	-0.002	-0.001	2	0.016	0.009	0.002	0.003
3	0.016	0.009	0.002	0.003	3	0.02	0.015	0.01	0.01
4	0.012	0.005	-0.001	0	4	0.015	0.01	0.004	0.004
5	0.017	0.009	0.003	0.004	5	0.013	0.008	0	0.001
6	0.013	0.005	-0.001	-0.001	6	0.023	0.018	0.008	0.007
7	0.017	0.01	0.004	0.004	7	0.014	0.01	0.005	0.006
8	0.018	0.011	0.007	0.008	8	0.016	0.009	0.003	0.003
9	0.015	0.008	0.003	0.004	9	0.016	0.009	0.003	0.002
10 (High)	0.018	0.012	0.007	0.008	10 (High)	0.013	0.007	0.003	0.002
High - Low	-0.002	-0.002	-0.001	-0.001	High - Low	0.001	0.001	0.002	0.002
	t-values					t-values			
1 (Low)	2.66	2.01	1.31	1.33	1 (Low)	1.5	0.98	0.39	0.06
2	1.87	0.82	-0.55	-0.4	2	2.32	1.55	0.31	0.48
3	2.47	1.71	0.55	0.59	3	2.19	1.65	1.16	1.17
4	1.83	0.91	-0.12	-0.02	4	2.23	1.86	0.86	0.76
5	2.85	2.19	0.95	0.98	5	1.09	0.69	-0.01	0.04
6	2.04	1.12	-0.3	-0.22	6	2.23	1.8	0.82	0.74
7	2.94	2.32	1.14	1.21	7	1.52	1.11	0.55	0.75
8	3.13	2.54	1.68	1.83	8	1.86	1.23	0.39	0.36
9	2.18	1.4	0.67	0.88	9	2.11	1.36	0.4	0.38
10 (High)	2.64	1.97	1.45	1.61	10 (High)	1.67	1.15	0.53	0.45
High - Low	-0.33	-0.28	-0.19	-0.11	High - Low	0.1	0.04	0.06	0.28

Panel B of Table 4 presents the portfolio excess returns of the KOSDAQ firms. When portfolios are sorted based on (SGA/TA), both the highest and the lowest (SGA/TA) portfolios earn positive and significant alphas. However, when the three-factor and five-factor models are used, neither the highest nor lowest portfolios

earn a significant return, and the mean excess return difference between the extreme portfolios also does not exhibit significant return. When KOSDAQ firms are sorted by SGAFV, no excess return and CAPM, three-factor, and five-factor alphas exhibit significant excess return, and mean excess return between the highest SGAFV portfolio and the lowest SGAFV portfolio do not exhibit positive and significant excess return as well. Overall, Table 4 presents evidence supporting H2a and H2b that excess return is associated with current SG&A level and SG&A future value for the KOSPI firms and shows that the trading strategy involving a long position of high SG&A and SGAFV firms and holding a short position of low SG&A and SGAFV firms result in positive and significant excess return. However, I do not find any supporting evidence that SG&A (deflated by total assets) and future value-generating ability of SG&A expenditure have a positive relationship with the monthly stock returns for the KOSDAQ firms and do not find significant excess returns while examining the high-low portfolio strategy of the KOSDAQ firms.

4.3 Risk versus Mispricing Explanations

4.3.1 SG&A based Factor-Mimicking Portfolio

To further investigate whether the subsequent excess returns associated with SG&A and SG&A future value are more consistent with the market mispricing explanation or the risk explanation, I adopt an SG&A based factor mimicking portfolio method that is similar to Hirshleifer et al. 2012 and Banker et al. 2019. Specifically, I use the monthly cross-sectional regressions of stock returns on SG&A and factor loadings with respect to the SG&A factor, market factor, SMB, and HML factor as in the following model:

$$RET_{p,t+1} = b_0 + b_1(SGA/TA)_{p,t} + b_2\beta_{SGA} + b_3\beta_{MKT} + b_4\beta_{SMB} + b_5\beta_{HML} + \varepsilon \qquad (5)$$

At the end of June of each year t+1, all stocks are assigned independently into 27 triple-sorted portfolios based on *Size*, *SGA/TA*, and preformation individual firm-level SGA/TA factor loading. Equal-weighted monthly returns on these 27 triple-sorted portfolios are calculated from July of year t+1 to June of year t+2. Details of forming 27 triple-sorted portfolios and estimating the portfolio level factor loadings are presented in Appendix B.

A positive coefficient in b_1 ($b_1 > 0$ and $b_2 = 0$) may suggest that the current level of SG&A, rather than the SG&A factor loading will predict future return and will be more consistent with the market mispricing explanation. On the other hand, a positive coefficient in b_2 ($b_2 > 0$ and $b_1 = 0$) may suggest that SG&A factor loading will be able to better estimate the future return and will be more consistent with the risk explanation than the market mispricing explanation. I follow the same procedure but replace $(SGA/TA)_{p,t}$ and SG&A factor loading with SGAFV to examine the relationship between excess return and SG&A future value. If b_1 is positive and significant, we can infer that SGAFV level rather than SGAFV factor loading predicts excess return better and market mispricing explanation will be more consistent. If b_2 is positive and significant while b1 is insignificant, SGAFV factor loading has more predictive power in explaining the excess return and risk explanation will be more consistent in explaining the relationship between excess return and SGAFV level.

Table 5 presents the monthly cross-sectional Fama and Macbeth (1973) regressions of the future excess returns on SG&A and SG&A factor loadings of the KOSPI firms. Column (1) presents result of current SG&A (deflated by total assets) level and SG&A

factor loadings and show that current $(SGA/TA)_{p,t}$ do not have significant coefficient with portfolio return (coefficient = 0.932, t−value = 0.554). In contrast, SG&A factor loading displays positive and significant relationship with portfolio returns (coefficient = 0.591, t−value = 1.976). These results indicate that it is SG&A factor loading, rather than the current level of SG&A, that has predictive power in estimating the future returns, which is inconsistent with the market mispricing explanation, but consistent with the risk explanation of the SG&A factor loading.

Column (2) of Table 5 presents results comparing $SGAFV_{p,t}$, and SGAFV factor loading levels. Column (2) show that $SGAFV_{p,t}$ does not show significant relationship with predicting returns (coefficient = −0.202, t−value = −0.868). In contrast with the current SG&A level, SGAFV factor loading also indicate that SGAFV factor loading does not have a significant association with monthly excess returns. (coefficient = −0.239 and t−value = −0.44).

Overall, Table 5 presents some evidence that SG&A factor loading of the current SG&A level has more predictive power in estimating excess return, and the relationship is more consistent with the risk explanation rather than the market mispricing explanation. I do not find evidence whether the current level of

Table 5

Monthly Cross-Sectional Regressions of Future Returns on SG&A and Factor Loadings

*****, **, *** Represents significance at the 1 percent, 5 percent, and 10 percent levels, respectively.
This table presents results from portfolio-level Fama and Macbeth (1973) monthly cross sectional regressions of portfolio returns ($RET_{p,t+1}$) on SG&A and factor loadings on KOSPI firms. SGA/TA and SGAFV are measured at fiscal year-end of year t. Size (market capitalization) is measured at the end of June of each year t+1. Portfolios are formed at the end of June of each year t+1. Column (1) presents results for portfolios formed based on size and the current level of SG&A deflated by total assets (SGA/TA). The dependent variable in Column (1) is equal-weighted monthly returns $RET_{p,t+1}$ (expressed in percentage) from July of year t+1 to June of year t+2, on the 27 triple-sorted portfolios based on size, SGA/TA, and preformation SG&A factor loading. $(SGA/TA)_{p,t}$ is the portfolio level equal-weighted average SGA?TA as of fiscal year-end of year t. $\beta_{SGA,}$ β*market*, $\beta_{SMB,}$ β_{HML} are the portfolio level factor loadings as of June of year t+1. Column (2) presents results for portfolios formed based on same procedure with Column (1) but SGA/TA replaced with SG&A future value (SGAFVA). The time-series averages of the monthly regression coefficients are reported with t-statistics based on their time-series standard errors.
See Appendix B for details on forming portfolios and obtaining factor loadings.

	(1)		**(2)**
	Dependent Variable		**Dependent Variable**
	$RET_{p,t+1}$ (%)		**$RET_{p,t+1}$ (%)**
$(SGA/TA)_{p,t}$	0.932	$SGAFV_{p,t}$	-0.202
	(0.554)		(-0.868)
β_{SGA}	0.591**	β_{SGAFV}	-0.239
	(1.976)		(-0.44)
β_{market}	0.01	β_{market}	0.068
	(0.027)		(0.208)
β_{SMB}	0.53**	β_{SMB}	0.402
	(2.157)		(1.397)
β_{HML}	0.602**	β_{HML}	-0.049
	(2.099)		(-0.162)
Intercept	1.033**	Intercept	1.02**
	(2.02)		(2.066)
Avg. R^2	0.35%	Avg. R^2	0.05%

SGAFV or SGAFV factor loadings has more predictive power in explaining the future excess return.

4.3.2 Duration of Excess Returns

To further investigate the risk versus market mispricing explanations, I examine the duration of excess returns generated from the current level of SG&A and SG&A future value (Chambers, Jennings, and Thompson 2002). Under the risk explanation, I expect to see a persistent pattern of excess returns over the years, with little or no variation in the magnitude of excess returns. Under the market mispricing explanation, I expect to see returns on the highest and the lowest SG&A portfolios reverse over the years due to correction in mis-valuation. Based on the sample of firms used in Table 4, I classify firms in the highest SGA/TA ($SGAFV/TA) decile into the high-SGA (high-$SGAFV) group and those in the lowest SGA/TA ($SGAFV/TA) decile into the low-SGA (low-$SGAFV) group. Table 6 shows the buy and hold annual average excess returns for the low- and high- SGA groups for each of ten years after the portfolio formation date, and the cross-year averages for years 1-5, 6-10, and 1-10.

Panel A of Table 6 show average excess returns for high- and low- SGA groups for subsequent periods. Panel A show that low-SGA group exhibit persistent negative and significant returns over the years. Until five years after portfolio formation, the low-SGA

group display negative and significant relationship with annual returns. After six years of investment, significance of return decreases but still generally exhibits significant negative returns. The cross-year averages of year 1-5 and year 1-10 also display negative and significant returns. In contrast to the low-SGA group, high-SGA group display continuing pattern of insignificant returns over the 10 year period.

Panel B of Table 6 show average excess returns for high- and low- $SGAFV groups for the subsequent periods. The result show that both high- and low- $SGAFV groups do not exhibit significant annual returns or cross- year average excess returns over the periods. Overall, high- and low- SGA groups exhibit persistent pattern of return over the years, especially the low- SGA groups display consistent negative returns over the subsequent periods. In general, high- and low- SGA groups display small amount of variation during the period. High- and low-$SGAFV groups do not exhibit significant return patterns over the subsequent period. Table 6 provides evidence that the relationship between excess returns and SG&A level may be more consistent with the risk explanation than the market mispricing explanation, consistent with results in Table 5.

Table 6
Long-Term Annual Excess Returns for High-SG&A versus Low-SG&A Groups

*****, **, *** Represents significance at the 1 percent, 5 percent, and 10 percent levels, respectively.
At the end of June each year t_1, portfolios are assigned by deciles based on SGA/TA in Panel A and ($SGAFV/TA) in Panel B. SGA/TA and ($SGAFV/TA) are measured at each firm's latest fiscal year ending in calendar year t. Firms in the highest decile of SGA/TA ($SGAFV/TA) are included in high-SGA/TA ($SGAFV/TA) group. Firms in the lowest decile of SGA/TA ($SGAFV/TA) are included in the low-SGA/TA ($SGAFV/TA) group. For each firm, the annual buy-and-hold size and book-to-market adjusted returns BHAR (expressed as percentage) is calculated as the compounded annual stock returns minus the compounded portfolio returns based on the intersections of the ten portfolios formed based on size (market capitalization) and ten portfolios formed on the book-to-market ratio. Portfolios are formed on July of year t+1 to June of year t+2. For each year following SG&A portfolio formation, BHAR is averaged across all firms for each group. Panel A includes firms with non-missing SG&A and SG&A future value, while Panel B includes firms with non-negative SG&A future value.

Panel A: Portfolios Sorted on SGA/TA

Year Following Portfolio Formation	Low - SGA/TA		High - SGA/TA	
	BHAR(%)	t-stat	BHAR(%)	t-stat
1	-5.985**	(-2.082)	6.206	(0.621)
2	-5.359*	(-1.927)	6.377	(0.638)
3	-5.181***	(-2.721)	5.088	(0.509)
4	-4.046***	(-2.593)	5.917	(0.592)
5	-5.388***	(-3.143)	5.155	(0.515)
6	-3.208*	(-1.738)	5.63	(0.563)
7	-1.648	(-0.892)	5.141	(0.514)
8	-3.868**	(-1.97)	5.448	(0.545)
9	-2.613	(-1.02)	5.862	(0.586)
10	-5.048**	(-1.963)	6.423	(0.642)
Avg. Years 1 - 5	-5.192**	(-2.493)	5.749	(0.575)
Avg. Years 6 - 10	-3.277	(-1.517)	5.701	(0.57)
Avg. Years 1 - 10	-4.234**	(-2.005)	5.725	(0.572)

Panel B: Portfolios Sorted on $SGAFV/TA

Year Following Portfolio Formation	Low - $SGAFV/TA		High - $SGAFV/TA	
	BHAR(%)	t-stat	BHAR(%)	t-stat
1	4.554	(1.542)	7.742	(0.774)
2	4.241*	(1.715)	7.917	(0.792)
3	0.705	(0.414)	5.226	(0.523)
4	2.133	(0.746)	5.006	(0.501)
5	1.875	(0.773)	4.984	(0.498)
6	0.351	(0.157)	4.965	(0.496)
7	-3.102	(-1.366)	5.34	(0.534)
8	2.061	(0.68)	4.758	(0.476)
9	-0.216	(-0.099)	4.848	(0.485)
10	-0.489	(-0.207)	4.544	(0.454)
Avg. Years 1 - 5	2.701	(1.038)	6.175	(0.617)
Avg. Years 6 - 10	-0.279	(-0.167)	4.891	(0.489)
Avg. Years 1 - 10	1.211	(0.436)	5.533	(0.553)

5. Additional Analysis

5.1 Cross-Sectional Future Return Tests Controlling for Other Effects

In Section IV, I follow the standard approach in the finance literature and use the five-factor asset pricing model to examine the excess returns earned on the SG&A portfolios. However, this model does not control for other effects on returns, such as momentum, stock issues, accruals, etc. To mitigate this concern, we control for these effects in cross-sectional future return analyses (Fama French 1992, 2008; Novy-Marx 2013) For each column, I add control variables to examine whether the SG&A level continues to have significant relationship with excess return.

Table 7 presents the monthly cross-sectional Fama and Macbeth (1973) regressions of future stock returns on SG&A expenditure and SG&A future value controlling for additional variables. Column (1) shows that SG&A current level remains significant while controlling EBITDA, size, and book-to-market. Columns (2) to (5) show that the coefficients of the current level of SG&A stay positive and significant when each control effects

Table 7

Monthly cross-sectional regressions of future stock returns on SG&A Expenditure and SG&A Future Value

*****, **, *** Represents significance at the 1 percent, 5 percent, and 10 percent levels, respectively.
This table presents results of Fama and Macbeth (1973) monthly cross-sectional regressions of firm-level stock returns on current level of SG&A (deflated by total assets) and SG&A future value. The dependent variable $RET_{\tau,t+1}$ are stock returns in month τ from July of year t+1 to June of year t+2. SGA/TA, SG&A future value (SGAFV) are measured at each firm's latest fiscal year ending in calendar year t. The average slope is time-series average, and t-statistics are based on the time-series standard errors.
All other variables are defined in Appendix A.

	(1)	(2)	(3)	(4)	(5)
$(SGA/TA)_t$	0.022*	0.024**	0.025**	0.024**	0.023**
	(1.9)	(2.04)	(2.17)	(2.1)	(2.04)
$SGAFV_t$	-0.001	-0.002	-0.002	-0.001	-0.002
	(-0.39)	(-0.51)	(-0.4)	(-0.44)	(-0.37)
$(EBITDA/TA)_t$	0.017	0.013	0.018	0.017	0.016
	(1.31)	(1.43)	(1.05)	(1.07)	(1.05)
LnME	-0.002	-0.002*	-0.002*	-0.002**	-0.002*
	(-1.43)	(-1.92)	(-1.94)	(-1.97)	(-1.95)
Ln(BE/ME)	0.004***	0.004***	0.004***	0.003***	0.003***
	(3.84)	(3.75)	(3.39)	(3.37)	(3.23)
$Momentum_{-1,0}$		-0.032***	-0.033***	-0.033***	-0.033***
		(-4.91)	(-4.99)	(-5)	(-5.01)
$Momentum_{-12,-2}$		-0.005	-0.005	-0.005	-0.005
		(-1.05)	(-1.01)	(-0.99)	(-1.04)
Zero_NS			0.003***	0.003***	0.003***
			(3.44)	(3.44)	(3.31)
NS				0.002	0.001
				(0.05)	(0.69)
Neg_AC/B				0.001	0.001
				(0.73)	(0.78)
ΔTA/TA					0.001
					(0.35)
Intercept	0.038**	0.036**	0.034*	0.034*	0.034*
	(1.99)	(2.28)	(1.95)	(1.94)	(1.95)
Adj. R^2	3.22%	6.31%	6.62%	6.59%	6.69%

(momentum, stock issue, accrual, and asset growth) are added.

Overall, Table 7 presents evidence that excess returns earned on

the current level of SG&A remains after controlling other effects on the returns.

6. Conclusion

This paper examines the stock market valuation of intangible assets generated by SG&A expenditure in the Korean stock market. I first show that the contemporaneous stock market recognizes the future value generated by SG&A and show that SG&A future value has a positive association with the annual stock return. I next examine monthly excess returns based on the portfolios sorted by SG&A level and find that a trading strategy with a long position in the high SG&A level portfolio and a short position in the low SG&A level portfolio generate annualized 13.2 percent returns. Further analysis provides evidence that SG&A factor loading has more predictive power in estimating future returns and return patterns persist over the subsequent period. These results provide evidence that the excess returns due to SG&A may be more consistent with the risk explanation rather than the market mispricing explanation. Overall, I could find that the Korean stock market is able to recognize the future value-generating ability of SG&A expenditure.

Such recognition indicates the current accounting measure of full expensing may lead to mis-valuation in the capital market.

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APPENDIX A
Variable Definitions

Variable	Definitions
Sales	Total Sales; [DataGuide annual item: 매출액]
TA	Total Assets; [DataGuide annual item: 총자산]
SGA	Selling, general and administrative expenditures excluding R&D and Advertising expenses [DataGuide annual item: 판매비와 관리비 – 연구개발비 – 광고선전비]
RD	R&D Expenditures [DataGuide annual item: 연구개발비]
ADV	Advertising Expenditures [DataGuide annual item: 광고선전비]
OI^B	Operating income before Depreciation, SG&A, R&D, and advertising expenditures [DataGuide annual item: 영업이익 + 유형자산감가상각비 + 판매비와 관리비)]
OI	Operating income before SG&A, R&D, and advertising expenditures [DataGuide annual items: 영업이익 + 판매비와 관리비]
SGAFV	Future benefit-creating ability of SG&A expenditure (SG&A future value) Sum of discounted coefficients on past SG&A $\left(\sum_{k=1}^{n} \frac{\alpha_{2,k}}{(1.1)^k}\right)$, estimated form the following model on a firm-by-firm basis using a rolling window of time-series data starting from 1987: $\left(\frac{OI^B}{TA}\right)_{i,t} = \alpha_0 + \alpha_1 \left(\frac{1}{TA}\right)_{i,t-1} + \sum_{k=0}^{n} \alpha_{2,k} \left(\frac{SGA}{TA}\right)_{i,t-k} + \alpha_3 \left(\frac{RD}{TA}\right)_{i,t} + \alpha_4 \left(\frac{AD}{TA}\right)_{i,t} + \varepsilon_{i,t}$ Details of estimation procedure are provided in Section III
$SGAFV	A dollar measure of SG&A future value: $\$SGAFV_t = \sum_{k=1}^{n} \frac{\alpha_{2,k}}{(1.1)^k}$ x SGA_t
P_t	Stock price adjusted for stock splits and stock dividends at the fiscal year-end of year t [DataGuide annual items: 수정주가(현금배당반영)]
$OIPS_t$	Operating income excluding SG&A, R&D, and advertising expenditure per adjusted share [DataGuide annual items: 영업이익 / (상장주식수(보통) x 수정계수(현금배당반영))]
$SGAPS_t$	SG&A expenditure exclusive of R&D and advertising expenditure per adjusted share [DataGuide annual items: (판매비와 관리비 – 연구개발비 – 광고선전비) / (상장주식수(보통) x 수정계수(현금배당반영))]
$RDPS_t$	R&D expenditures per adjusted share [DataGuide annual items: 연구개발비 / (상장주식수(보통) x 수정계수(현금배당반영))]
$ADPS_t$	Advertising expenditures per adjusted share [DataGuide annual items: 광고선전비 / (상장주식수(보통) x 수정계수(현금배당반영))]
EBITDA/TA	Earnings before interest, taxes, depreciation, and amortization divided by total assets at fiscal year-end t [DataGuide annual items: (영업이익 + 유형자산감가상각비) / 총자산]
LnME	The natural logarithm of market equity in June of year t+1 (in ₩ millions)

(continued on next page)

APPENDIX A (Continued)

Variable	Definitions
Ln(BE/ME)	The natural logarithm of book-to-market ratio, where BE is book equity [DataGuide annual items: 보통주 자본금 + 자본잉여금 + 이익잉여금 + 자기주식 + 자기주식처분손실 + 이연법인세부채] at fiscal year-ending in calendar year t; ME is the market equity in December of year t.
Momentum	Momentum for each month τ, measured as cumulative returns from month τ-1 to τ ($Momentum_{-1,0}$) and τ-12 to τ-2 ($Momentum_{-12,-2}$)
NS	Net stock issues, measured as change in the natural logarithm of adjusted shares outstanding [DataGuide annual items: 상장주식수(보통) x 수정계수] from fiscal year end in t-1 to t
Zero_NS	An indicator variable that is equal to 1 if NS is zero and 0 if otherwise.
AC/B	Accruals measured as following: Accruals = ΔCA - ΔCash – (ΔCL - ΔSTD - ΔTP) – DP Δ means change in each variable from fiscal year-end of year t-1 to fiscal year-end of year t [DataGuide annual items: Δ유동자산 - Δ현금 및 현금성자산 – (Δ유동부채 - Δ단기차입금 - Δ당기법인세부채) – 유형자산감가상각비]
ΔTA/TA	Growth in assets, the natural logarithm of the ratio of total assets per adjusted share at fiscal year-end in year t divided by total assets per adjusted share at fiscal year-end in year t-1.
$BHAR_{t+1}$	One-year ahead buy-and-hold size and book-to-market adjusted returns (expressed in percentage) measured from July of year t+1 through June of year t+2 Compound annual stock returns minus compounded portfolio returns based on intersections of ten portfolios formed on size (market capitalization) and ten portfolios formed on the book-to-market ratio.

Appendix B

Procedure for forming 27 triple sorted portfolios and obtaining portfolio level factor loadings

Similar to Hirshleifer et al. 2012, I regress the monthly portfolio stock returns on SG&A and various factor loadings to evaluate whether the risk explanation or the market mispricing explanation is more consistent in explaining the relationship with excess returns earned on the portfolios sorted by SG&A level. Below is the procedure for forming the portfolios and obtaining the portfolio-level factor loadings used in Column (1) in Table 5 (β_{market}, β_{SMB}, β_{HML}, and β_{SGA}). Column (2) follows the same procedure, by replacing SGA/TA with SGAFV.

Step1: Construct Monthly *SGA/TA Factor* returns

At the end of June of each year t+1 from 1987 to 2021, all stocks in KOSPI with non-missing market capitalization are sorted into two size groups (Small or Big) based on the KOSPI median market capitalization at the end of June of year t+1. Stocks are independently sorted by three (SGA/TA) portfolios based on bottom 30 percent, 40 percent, and top 30 percent as breakpoint (Low, Medium, or High). (SGA/TA) breakpoint is measured at each fiscal year-end at calendar year t. Total six portfolios based on 2 x 3 Size and (SGA/TA) group intersections are formed (SL, SM, SH, BL, BM, BH) and each portfolio's value weighted returns are computed. SGA/TA factor is monthly *SG&A Factor* return, which is the average return on the two low SG&A groups (SL and BL) minus average return on the two high SG&A groups (SH and BH). Thus, *SGA/TA Factor* is computed ad (SL + BL)/2 - (SH + BH)/2.

Step 2: Obtain Firm-Specific Preformation Factor Loading for SGA/TA

After obtaining *SGA/TA Factor* from step 1, *SGA/TA Factor* is added to the Fama and French three-factor asset pricing model (Fama and French 1993) and estimate the individual firm-level preformation SG&A factor loadings – i.e., SG&A factor loadings over the 24 months (minimum 24 months) prior to formation of portfolios at end of June of year t+1 from the following regression:

$$R_{i\tau} - R_{f\tau} = a_i + s'_i SGA/TA\ Factor_\tau + b_i\left(R_{m\tau} - R_{f\tau}\right) + s_i SMB_\tau + h_i HML_\tau + \varepsilon_{i\tau}$$

where $R_{i\tau} - R_{f\tau}$ is the monthly stock return in excess of the monthly Korean stabilization bond rate for firm i in calendar month τ. The SGA/TA Factor and the three Fama and French factors are monthly factor returns over the same 24-month period. The three Fama and French factors are constructed using independent 2 x 3 sorts based on size and book to market. SMB_τ is the average return on the nine small stock portfolios minus the average return on the nine big stock portfolios. HML_τ is the average return of two high book-to-market portfolios (value portfolios) minus the two low book-to-market portfolios (growth portfolios). Coefficient s'_i is the firm-specific preformation (SGA/TA) factor loading as of June of each year t+1.

Step 3: Form Portfolios based on Size, SGA/TA, and Preformation SGA/TA Factor Loading

At the end of June of each year t+1, all stocks with non-missing market capitalization, (SGA/TA), and preformation (SGA/TA)

factor loadings are placed independently into three size groups (Small, Medium, or Big), three (SGA/TA) groups (Low, Medium, or High), and three preformation (SGA/TA) factor loading groups (Low, Medium, or High). Size groups and preformation (SGA/TA) factor loading groups breakpoints are measured at end of June of each year t+1. (SGA/TA) breakpoints are measured at fiscal year−end of each calendar year t. 27 portfolios are formed based on the intersections of the three size groups, three (SGA/TA) groups, and three preformation (SGA/TA) groups.

Step 4: Obtain Portfolio−Level Factor Loadings

For each of 27 portfolios, we obtain portfolio−level factor loadings (β_{SGA}, β_{market}, β_{SMB}, β_{HML}) by regressing the equal−weighted monthly excess returns on the factors over the last 24 months (minimum 24 months) prior to portfolio formation at the end of June of each year t+1, using the following regression:

$$R_{p\tau} - R_{f\tau} = \alpha + \beta_{SGA} SGA/TA\ Factor_{\tau} + \beta_{market}(R_{m\tau} - R_{f\tau}) + \beta_{SMB} SMB_{\tau} + \beta_{HML} HML_{\tau} + \varepsilon_{p\tau}$$

where $R_{p\tau} - R_{f\tau}$ is the equal weighted monthly stock return in excess of monthly Korean stabilization bond rate for portfolio p in calendar month τ. The SGA/TA factor and the Fama French three factors are monthly returns over the 24−month period. Other variables are same as defined in Step 2. The coefficients β_{market}, β_{SMB}, β_{HML}, and β_{SGA} are the portfolio−level factor loadings as of June of each year t+1.

초 록

본 논문에서는 미래가치를 증대 시킬 수 있는 판매 및 관리비의 특성이 국내의 주식시장에서 반영이 되는지 실증적으로 검증하고자 한다. 판매 및 관리비는 비용적인 측면만이 아니라 미래가치를 증대 시키는 자산적인 측면이 있어 판매 및 관리비로 인해 발생하는 미래가치를 측정한 후 주식시장에서 어떻게 반영되는지를 살펴본다.

1987.01.01 부터 2021.12.31 까지 KOSPI, KOSDAQ 을 대상으로 검증한 결과는 아래와 같이 요약해 볼 수 있다. 첫째, 판매 빛 관리비로 생기는 미래가치 (SGAFV)는 KOSPI, KOSDAQ 시장에서 연간 수익률과 유의미한 양의 관계를 가지고 있다. 둘째, 판매 및 관리비를 기준으로 포트폴리오를 구성하였을 때 판매 및 관리비가 높은 기업을 매수하고 판매 및 관리비가 낮은 기업을 매도하는 전략이 유의미한 양의 수익률을 가졌다. 셋째, 판매 및 관리비와 연관된 양의 수익률은 시장가격형성오류 (Market Mispricing Explanation) 보다 위험으로 인한 수익률 증가 (Risk Explanation)에 좀더 가까운 이유를 가지고 있다.

주요어: 판매 및 관리비, 무형자산, 시장가치 평가

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