Information Analysis of Differences between Reported Expenditure and Actual Sending in Advertising Activities

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Abstract

Many study suggested company meet their business results with the control of general management expenses against change of sales amount or earnings. Advertising expense is one of the accounting information those companies may utilize for their earning management. We compares reported advertising expenditure from financial reports with independently collected actual expenses for advertising activities and investigate the differences.

The result shows actual advertising expenses are affected by sales or earnings, but reported expenditure is not related with those changes. It implies actual expenses are not properly reported to market users and needs more regulations on public announcements.

Keywords: advertising expenditure, financial report, management expense, earning management

1. Introduction

Many companies invest on advertising activities for sales promotion and market demand expansion. The investment takes up to certain percentage of sales and the effectiveness of advertising activity is one of the key factors of business performance. Reasonable advertising plan and control of the results rely heavily on the accurate measurement of advertising effectiveness.

However, accounting information on advertising doesn't have standardized measurement process. It caused by complexity of process, arbitrariness of accounting method, and lack of related information for each company. Expenses on advertising activities should be clarified as advertising expenditure, intangible asset, or other expenditure. Under IFRS, each company can decide the method to report advertising expenses. With permission of self-regulation of accounting method, IFRS also recommends public announcement on the process details, but it is not mandatory. It resulted in differences between actual spending on advertising activities and reported expenditure for firms.

To analyze the differences between real expenses and reported expenditure on advertising activities, we compare each company's financial report and 3rd party reports[1] on their advertising activities during 2000 - 2010. Also we review spending on advertising activities are related another business performance factors.

The analysis result shows that spending on advertising activities is heavily related with sales amount instead of revenue. Also we can identify companies spent too much or too less compared with other having similar sales amount. It provides us another review method for accounting information, especially for general management expenses. Without more data on

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[1] Monthly report from KADD(Korea Advanced Digital Data) NMR (Nielson Medial Research) of advertising for main media – TV, Radio, Paper and Magazine in Korea .

other management expense, it might not be directly applied as a proof of earning management activities though.

2. Theoretical Background and Hypothesis

2.1. Literature review

To measuring effectiveness of advertisement is a complex process regarding on the difficulties on checking all expenses during a certain period and measuring the ambiguous outputs of advertising activities. Besides, for each spending, we should identify the expenses are for fixed asset, deferred charge, inventories, or prepaid expenditures. Company can identify the related expenses as expenditure for the advertising agency or labor cost. The arbitrariness of accounting process for the advertising investment should be complemented by public announcements. Besides, advertising activities are known to have lagged effects and carryover effect (Batra, Myers, Aaker, 1992), which prevents its exact effect measurement.

Basically, advertising activities are targeting to increase sales amount. With the increases of sales, company expects more revenue. The theoretical discussion on the relationship between sales and revenue as a linear equation developed (Dechow, Kothari, Watts, 1998). Their discussion is based on following assumptions.

- Earning is a part of current sales. $\qquad E_t = \pi S_t$

- Account Receivable is a part of Current Sales $\qquad AR_t = \alpha S_t$

- Target inventory is a part of the expected sales cost in next period

$$\text{Target } INV_t = \gamma (1 - \pi)S_{t+1}$$

- Account Payables is a part of procurement $\qquad AP_t = \beta P_t$

- don't consider other fixed costs

With above assumptions, working capital also can be defined as followings.

$$A_t = Working\ Capital_t + Working\ Capital_{t-1}$$
$$= (AR_t + INV_t - AP_t) - (AR_{t-1} + INV_{t-1} - AP_{t-1})$$

The equations are applied to draw the relationship between accruals and sales amount.

With the above linear relationships between sales amount and other variables, Roychowdhury (2006) suggested industrial cross-sectional analysis to find "intentional reducing discretionary management cost such as Advertising, R&D costs, and general administrative expenses", "intentional reducing production cost", or "intentional increasing sales with promotion or to alleviate the present trading conditions, such as lowering of interest rates for car loans", which are defined as earning manipulation with real business operations. For each of these cases, he analyzes and compares their impacts on the accounting data. He also classifies companies with excessively low cash flow or high discretionary expenses as examples of earning management.

2.2. Hypothesis Development

Following the linear equation (Dechow, Kothari, Watts, 1998) between earnings and sales amount, we also regard the general management expenses are linear function of sale amount. Even though advertising expenses are one of general management expenses, some previous

study pointed out steady investment on advertising is not efficient (Simon, 1982, Feng *et al.*, 2004, Wang & Huang, 2007). Purse advertising activities are more efficient than constant advertising (Katz, 1980). The assumption of linear relationship between general management expenditure and sales amount is contradictory to efficiency of advertising activities.

If most companies invest certain portion of sales, we can find the linear relationship between sales and advertising expenses. Besides, we check if firms increase the advertising expenses with earning changes, because advertising activities are related with business performance (Kotler, 1984).

Hypothesis 1: *Reported expenditure in advertising activities is relevant to firm's sales and revenue.*

Hypothesis 2: *Actual spending in advertising activities is relevant to firm's sales and revenue.*

After the check of linear relationship between advertising expenses with sales or revenue, we will review the differences between actual expenses and reported expenditure. IFRS admit each company decide how to process the expenses, the reason of differences might be diverse. However, many studies insist advertising expenses should be classified as intangible assets which give positive effects on firm valuation. If advertising expenses are classified as general management expenses instead of advertising account, it might misguide market users.

In this study, we will focus more on the size of difference instead of the root cause. If advertising expenses are relevant to sales or earnings, the difference should not be affected by increase of sales, because reported and actual expenditure will be increased at the same time.

Hypothesis 3: *Differences between reported expenditure and actual spending in advertising activities are relevant firm's performance change in sales and revenue.*

In addition, we also check if we can identify suspicious companies using advertising expenditure as a mean of earning management. The more differences company has, higher possibility of earning management it has with advertising expenses.

Hypothesis 4: *Differences between reported expenditure and actual spending in advertising activities increases the possibility of firm's earning management*

3. Empirical Analysis

3.1. Data

We identified companies ranked high 100 companies for advertising expenses in KADD(Korea Advanced Digital Data) NMR (Nielson Medial Research) Reports during 2000 -2010. We compared reported advertising expenditure with advertising expenditure within firm's financial reports.

Table 1. company distribution for control and expriemental group

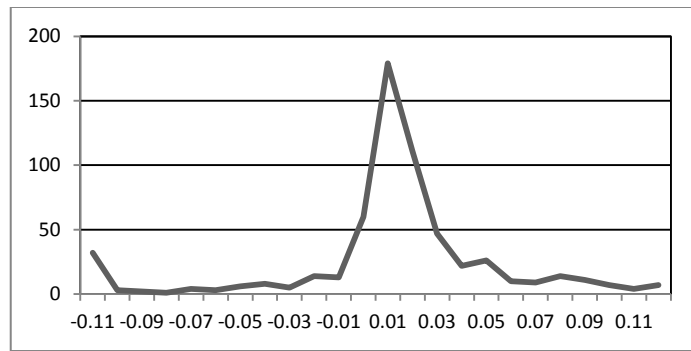| Company	Company-Year
263	598

Figure 2. distribution of differences between reported and real advertising expenses (% sales)

Table 1 shows the count of company and company-year data. Each company-year data has reported advertising expenditure and collected actual advertising expenses. The distribution of the differences compared to sales amount is displayed in Figure 1. The average of differences is -0.08, while median value is 0.0069. It shows most company has more reported advertising expenditure than collected actual advertising expenses.

3.2. Regression model

For further discussion, we use regression analysis to measure the influence of sales and earning amount to advertising expenses. As described in related researches, we can expected linear relationship between general management expenses and sales amount, while it is unclear of the earning's effects.

$$AD_{it} = \beta_0 + \beta_1 * S_{it} + \beta_2 * E_{it} + \beta_3 * \Delta S_{it} + \beta_4 * \Delta E_{it} + \epsilon \qquad (1)$$

Cf) AD_{it} : natural log of company i's reported advertising expenditure in time t

S_{it} : natural log of company i's Sales amount in time t

E_{it} : natural log of company i's Earning amount in time t

ΔS_{it} : natural log of company i's change ratio of Sales amount in time t

ΔE_{it} : natural log of company i's change ratio of Earning amount in time t

ϵ : error

From the equation (1), we expect a positive coefficient for both sales and earning amount. In addition, we can expect negative coefficient for change ratio of sales and earning amount, because company will increase advertisement to recover decreased sales and vice versa. In addition, we will replace reported advertising expenditure with collected actual expenses and check if the result is similar with previous one.

In order to test the differences between above two values, we will replace AD variables. We can expect similar sign of coefficient with equation (1) while we will see more clear sign of coefficient for change of sales and earning amounts.

$$\Delta AD_{it} = \beta_0 + \beta_1 * S_{it} + \beta_2 * E_{it} + \beta_3 * \Delta S_{it} + \beta_4 * \Delta E_{it} + \epsilon \qquad (2)$$

Cf) ΔAD_{it}: natural log of company i's change ratio of advertising expenditure in time t

3.3. Variables

The distribution and correlation between variables used in equations are presented in Table 3 and Table 4. We can see the variables are independent.

Table 3. Distribution of variables

Variable	Average	SD	Median	Min	Max
AD(reported)	17.1695	1.4627	17.2489	7.0605	21.7546
AD(actual)	16.8278	0.6198	16.6734	16.0242	19.1235
ΔAD	9.0652	13.7472	16.2641	-17.3272	21.6989
S	20.7466	1.8303	20.7384	15.2372	25.4440
E	14.4365	10.7736	17.6543	-21.3872	23.3062
ΔS	0.4687	4.6702	0.0961	-0.9668	104.6891
ΔE	0.0083	0.1340	0.0073	-1.4662	1.7159

Table 4. Pearson Correlation

	AD(actual)	ΔAD	S	E	ΔS	ΔE
AD(reported)	0.6411 (0.0000)***	0.6758 (0.0000)***	0.6351 (0.0000)***	0.1804 (0.0000)***	0.0801 (5.256e-12)***	-0.0559 (0.0685)*
AD(actual)		0.2814 (0.0000)***	0.5381 (0.0000)***	0.2162 (8.88e-08)***	0.0435 (1.031e-09)***	-0.0057 (0.0336)
ΔAD			0.4315 (0.0000)***	0.0345 (0.2805)***	0.1042 (0.002754)***	-0.1063 (0.1418)
S				0.2071 (0.9316)	0.0071 (0.06653)*	0.0018 (0.0312)
E					0.0007 (0.0000)***	0.2311 (0.3049)
ΔS						0.0437 (0.0168)
ΔE						

Cf) p-value in ( )
N=598; * p < .05, ** p < .01, *** p < .001.

3.4. Regression Results

According to the results of the regression analysis with expression (1) in Table 5, variables of assets, liabilities, and dividends have expected coefficient signs. Assets related variables have positive coefficient values, and debt-related variables have negative coefficient values. Growth dummy variables also have a positive coefficient. It means companies in Growth stage have higher firm value than others with same financial information. We guess it's because of positive impacts of non-financial information in Growth stage.

Coefficient of the non-intangible assets is greater than the value of intangible assets. It shows, even for internet-related companies, non-intangible assets have greater influence on firm value. In addition, interaction term with intangible assets and growth dummy variables has not positive coefficient, which means intangible assets have additional impact in maturity stage. The differences are not significant and it makes we can accept hypothesis 2 as true.

Table 5. Regression results with expression (1), (2) and (3)

	Expression (1) with reported expenditure	Expression (1) with collected actual expenses	Expression (2)
Constant	6.7528 (0.0000)***	13.1221 (0.0000)***	-58.4177 (0.0000)***
S	0.4964 (0.0000)***	0.1741 (0.0000)***	3.2929 (0.0000)***
E	0.0092 (0.0536)*	0.0066 (0.0030)***	-0.0438 (0.4015)
ΔS	-0.0228 (0.0302)**	-0.0052 (0.2871)	-0.2855 (0.0130)**
ΔE	-0.7597 (0.0436)**	-0.0921 (0.5963)	-9.7397 (0.0182)**
F value	93.38	56.94	34.12
Adj R^2	0.4117	0.298	0.202

Cf) p-value in ( )
    N=598; * $p < .05$, ** $p < .01$, *** $p < .001$.

The result of regression using equation (2) shows R&D expenditure variable has negative coefficient value. It means R&D spending recognized as expenditure may not give positive impact on firm market value. If R&D spending recognized as intangible assets instead of expenditure, it also give positive impacts for firm market value. In addition, interaction term with R&D expenditure variable and growth dummy variable has positive coefficient, which means R&D invest has more positive effects on firm market value in growth stage. However, the positive effects of R&D expenditure for Growth stage companies are not statistically significant and we cannot accept hypothesis (3) as true.

Finally, the result of regression using equation (3) in Table 5 shows advertising expenditure has not positive coefficient, while interaction term with maturity dummy variable and advertising expenditure has positive coefficient. Also the interaction term has much stronger effects on firm market value than advertising expenditure itself. It shows exactly why previous researches have contradictory results. Generally speaking, the use of advertising expenses is expected to have a negative impact on firm market value in short term. However, you can have strong positive impacts on the firm market value only for companies in maturity stage.

4. Discussions

This study investigated the value advertising expenditure and collected actual advertising expense. Both of them are relevant to sales amount and the difference between them is relevant to sales and earning changes.

Obtained conclusions through data analysis follow.

First, all advertising expenses are strongly related with sales amount regardless of its type. This result is exactly same as the previous study assumed.

Second, collected actual advertising experiences are strongly related with earning amount, while reported expenditure or their changes are not affected by the earning changes. It means actual expensed are reduced or extended as earning amount changes, but the reported expenditure is constant. It might be a proof of earning management with real operations, which previous studies presented. However, we need more information how suspicious company processed the advertising expenses and announced. We can identify several suspicious companies with actual advertising expenses though.

The empirical results of this study provide concrete case actual advertising expenses are not correctly represented in financial report. It reminds market user to investigate firm financial reports with more efforts. Also we need more regulation for public announcement for details on accounting decisions.

Acknowledgements

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