The Effect of Advertising Expenditures on the Intangible Capital Aspect: Sample Firms of US Leading Advertisers

HAN Xing[a],*

[a] College of Finance, Qilu University of Technology, China; College of Economics, Shandong University, China.
* Corresponding author.

Abstract

This paper intends to investigate the "intangible capital aspect" of advertising as well as the long-lived effect of advertising. The paper starts with the definition of "intangible capital aspect" of advertising and the explanation why the present topic is worthwhile for the research. To offer a general research background, it also provides several important references concerned with the study. The research employs two regression models in which the first one focuses on the relationship between the market value and the advertising expenditure by using a sample firms from the 100 US Leading Advertisers during the period 2004 to 2006. Through the research findings, it is believed that the effect of advertising expenditure on the market value is positive and significant. The second regression model suggests that advertising could possibly bring long-lived effect on firms although there is lack of strong evidence to support the point.

Key words: Advertising expenditure; Intangible capital aspect; US leading advertisers

INTRODUCTION

Advertising, the main research of interest in firm's operation, has always been considered as one of the most important topics in industrial organization and one of the most crucial determinants for firm's profit and sales revenue. Since in modern economies, the intangible resources of firms play more crucial roles in the development of firms. Therefore, instead of studying the instant profitability of advertising expenditure, the "intangible capital aspect" of advertising deserves more focus and more comprehensive research.

As early as more than 20 years ago, economists began to emphasize the "intangible aspects" of advertising. For instance, Hirschey (1982) pointed out in his research that "the advertising expenditure can be viewed as a capital good that depreciates over time and needs maintenance and repair" (Hirschey, 1982, p. 375). Therefore, advertising expenditure will bring future potential profits to firms which can be represented by the improvement of market value, production of economies of scale and building of intangible assets for firms. In previous studies, there already exists some evidence to support the effect of advertising investment on the firm's subsequent gains. However, there are also many controversial views showing doubts about the "intangible aspect" of advertising.

Thus, the present paper aims at exploring the "intangible capital aspect" of advertising by employing the regression models on a sample firms from the 100 US Leading Advertisers.

1. POSSIBLE EMPIRICAL RESULTS

The hypothesis of this research is that there exists a positive and significant relationship between advertising and the intangible capital aspect of firms. Since in our regression, the market value of firms will be considered as the measurement of the intangible resources and the future potential profit of firms. Therefore, the possible empirical result is that the effect of advertising on the market value of firms is positive and significant. If the positive and significant relationship can be proved, then

it can be implied that advertising does have intangible capital aspect.

Besides, the research interest is also focused on testing whether the effect of advertising on market value can be seen as long-lived effect. According to previous studies, advertising is capable of yielding long-lasting benefits on firms. In our prediction, the effect of advertising on market value should also be seen as long-lived effect. Thus, we estimate that the effect of advertising of previous year levels on current year market value should be positive and significant. Thereby, we will carry out the second regression model to check our prediction.

2. LITERATURE REVIEW

There are moderate amount of literature which have studied the "intangible capital aspect" of advertising expenditure. On one hand, studies by Hirschey (1982), Connolly and Hirschey (1984), Hirschey and Spencer (1992) all found significant evidence to support the intangible capital nature of advertising. On the other hand, there have been some controversial views, which show doubts about the intangible nature of advertising. For instance, Bublitz and Ettredge (1989) claimed in their studies that rather than advertising, only R&D can be seen as capital-investment outlay. Moreover, some other studies only support the intangible capital nature of advertising in specific industries. Such cases including Peles (1971) and Abdel-Khalik (1975) Thus, it is evident that there exist different views concerning the topic and people still have doubts about the "intangible capital aspect" of advertising.

Since the early studies still require further verification, therefore, it is my research of interest to do further study so as to find more evidence to support the "intangible capital aspect" of advertising. According to Hirschey (1982)'s work, "market value of the firm represents the future profit stream discounted to the present at an appropriate risk-adjusted rate of discount" (Hirschey, 1982, p. 379), therefore, the market value of firms can be considered as a good measurement of the firm's future potential profit. If the effect of advertising on market value of firms can be proved to be significantly positive, then, there will be evidence to support the "intangible capital aspect" of firms.

If the advertising can be explained from the capital-investment outlay, then, the advertising should be capitalized over the estimated economic lives and advertising strategy will be reconsidered by firms from profit-maximizing perspective.

In the early studies, the intangible capital aspect of firms was analyzed through the relationship between advertising and the current sale revenue of firms. Since the measurement did not fit well, so the leading results were also obscure. As it is mentioned, in Peles (1971)'s study, he only found convincing evidence in beer and cigarette industries. Abdel-Khalik (1975) examined more industries in his work, however, like Peles (1971); he only found long-lived effects of advertising in food, drag and cosmetic industries. More discouragingly, "Picconni (1977) found it troublesome that even among the most heavily advertised products, a systematic relationship between advertising and sales or market share can not consistently be found" (Hirschey, 1982, p. 376). Therefore, the evidence in limited industries questioned the capital aspect of advertising.

In the following literature, Hirschey (1982) has made major contributions to the study by revising the problems existing in the early studies. He pointed out in his work that the early studies had put exclusively heavy focus on the advertising of individual items, and the other important parts of advertising defined by him as "institutional" (Hirschey, 1982, p. 376) advertising which would improve the firm's public image or was beneficial for firm's reputation had been ignored. Since he argued that both product advertising and institutional advertising could bring benefits to firms, therefore, the drop of important parts of advertising would lead to the ignorance of the importance or durability of advertising (Hirschey, 1982, p. 376). Secondly, in his study, the methodology employed by early studies was also revised. He used the cross-sectional valuation model and assigned the market value as the measurement of the intangible capital aspect of firms. In his research, he found evidence to support the intangible capital aspect of firms. Connolly and Hirschey (1984) expanded Hirschey (1982)'s research to much larger sample size. Their result also favoured the intangible nature of advertising. Nevertheless, the study by Bublitz and Ettredge (1989) led to controversial results and concluded with no evidence to support the intangible capital aspect of advertising. In their study, advertising could only be considered as expense rather than investment outlay.

The most important reference for this paper is the study by Maqsood (2007) titled with "Asset Value pf UK firms Advertising Expenditure" published on *Global Journal of International Business Research*. He provided more comprehensive understanding of the "intangible capital" aspect of advertising. By employing the valuation model to investigate the relationship between market value and advertising, his study suggested that there exist positive and significant relationship between advertising and market value. His study intended to "improve the understanding of the gap between the market value and book value of firms by focusing on intangible assets, which do not appear on financial statements" (Maqsood, 2007, p. 12). Also, his study had made contribution to the limited concerned research in UK market. The present research also employed the methodology similar with the one used by Maqsood (2007) work.

3. METHODOLOGY

3.1 Description of Dataset and Variables

This research plans to choose 30 firms from the 100 US leading national advertisers at random. At the same time, these 30 firms are also ranked as Global 500 firms during our research periods. Our sample firms are classified as various kinds of industries such as textiles, chemicals, food producers, general retailers, tobacco, information technology, media and biotechnology and so on. The reason to cover a wide variety of industries is to make the possible results better-grounded and more convincing. According to Maqsood (2007)'s research, there are some constraints when the sample firms are chosen. First, financial and insurance firms could not be included in our sample. Secondly, all the datasets for each variable must be available. At last, all the data for the independent variable book value should be positive (Maqsood, 2007, p. 18).

In the first regression model, our research period is between 2004 and 2006. We have assigned five variables in this regression equation; thus, our research is based on 90 observations. The dependent variable for the research is market value (MV), it is defined as the market value of equity which equals to the share price on a specific date times the number of issued shares, as discussed by Hirschey (1982), market value represents the "future profit stream" (Hirschey, 1982, p. 379) and is considered as the measurement of the intangible resources of firms. Thus, it is supposed to be the dependent variable in the regression model. The dataset of market value can be available from the online resource *Financial Time* and is named as *Financial Time Global 500*.

Moreover, "market value of the firm is dependent upon various 'indicators' of the firm's future profit potential" (Hirschey, 1982, p. 379). One of the most important indicators will be book value (BV), defined as sum of share holder's equity, or total stockholder's investment. Book value represents the firm's investment on tangible resources and is adopted here to be an important explanatory variable.

Besides, firms' net profit or net income which measured as earnings (E) is also an independent variable in the regression. At some level, earnings indicate the potential profit of firms and are presented here as the important determinant for market value.

Dividend (D), calculated as the total amounts paid on ordinary share and on preferred shares, is also used as an independent variable. The datasets for book value, earnings, dividend all come from the online resource *Yahoo Finance*. Each firm's homepage can be searched from *Yahoo Finance,* thereby, the annual report of each firm is available from the investor relation part, and all the concerned data can be obtained from the statement of operation, statement of cash flows and statement of balance sheet.

The major variable of interest in the research is the advertising expenditure (AD). The advertising data is obtained from *Advertising Age Data Center*. It reports annual advertising US leading spending for top 100 leading advertisers. The advertising data it shows is classified by category which includes major media expenditures such as TV, networks, newspaper, magazines, radio and outdoor. The wide variety of advertising expenditure resources will make our result more persuasive and effective.

In the second regression equation, we will have 7 variables and 30 observations. The market value of 2006 is estimated to be the current year level and will be the dependent variable as well as the measurement of the long-lasting benefits of advertising. The explanatory variables in the regression will include 2006 year level book value, earnings, dividend and the advertising datasets of year from 2004 to 2006. All the datasets in our two regression equations will be measured in millions of dollars.

3.2 The Regression Equation

The first regression model to be estimated is: $MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \alpha_3 AD_{it} + \alpha_4 D_{it} + \xi$ (1). The model is very similar with the one employed by Maqsood (2007) in his work. According to the regression model, the dependent variable market value is regressed on the independent variables book value, earnings, advertising expenditure and dividend. The subscript 'it' represents firm i in t time period. Our research will carry out Ordinary Least Squares technique and the pooled sample including 30 firms during the research period 2004 to 2006 will be estimated. We combine the cross sectional sample and time series dataset together to enlarge the sample size and reduce the possible multicollinearity problem. The objective of the regression model (1) is to test the relationship between advertising and market value. It is predicted that if the estimated coefficient '**α_3**' of advertising is positive and statistically significant, we could conclude with that advertising does have positive and significant effect on market value, therefore, it is reasonable to consider advertising from intangible capital aspect, rather than expenses. Besides, the effect of book value, earnings and dividend on market value will also be analyzed.

The second regression model of our research is described as: $2006MV = \alpha_0 + \alpha_1 2006BV + \alpha_2 2006E + \alpha_3 2006D + \alpha_4 2006AD + \alpha_5 2005AD + \alpha_6 2004AD + \xi$ (2). In this regression model, the dependent variable market value of 2006 is regressed on independent variables 2006 book value, 2006 earnings, 2006 dividend and 2006 advertising, 2005 advertising as well as 2004 advertising. In order to test whether the effect of advertising on market value can be seen as long-lasting benefits, it is necessary to estimate the effect of previous advertising on the current market value. Hereby, we consider the most current year in our research period 2006 as the measurement year level, therefore, the effect of the advertising in both

2004 and 2005 will be our focus. If we could obtain the predicted result in the first regression, then advertising can be considered as capital good, and it is reasonable to suppose advertising should bring long-lasting benefits to firms. Thus, the prediction of the second regression model is that the estimated coefficient of 2005 advertising 'α5' and the estimated coefficient of 2004 advertising 'α6' could be positive and statistically significant.

3.3 The Descriptive Statistics and the Estimation Results

Table 1 shows the basic descriptive statistics of the regression model (1)：

Table 1
Descriptive Statistics of Regression Equation (1)

Variables	Obs	Mean	Std. Dev	Min	Max	Corr
MV	90	113478.1	100129.4	15487.5	545324.9	
BV	90	30879.38	31360.38	1026.66	119783	0.69
E	90	5871.572	5404.054	497.43	25124.05	0.71
AD	90	1397.521	996.14	227.3	4898	0.30
D	90	2232.063	2627.856	55.3	10420	0.65

According to the mean, minimum, maximum values, it tends to appear that most variables are concentrated at the lower end of the distributions. Besides, the correlations of all independent variables between dependent variables suggest that the independent variables in our regression are all correlated with the dependent variable market value. Moreover, the moderate correlation values in Table 1 are also a signal to imply that our sample may not be affected by multicollinearity much. In Table 2 it shows the estimated coefficients of all independent variables as well as the two-tailed *t*-test statistics and the related *p*-value:

Table 2
Estimation Results of Regression Equation (1)

Variables	Coefficient	Std. Err	t	P-value	R-squared
BV	1.05	0.443	2.37	0.020	0.5472
E	9.56	3.432	2.78	0.007	
AD	18.56	7.479	2.48	0.015	
D	23.21	3.147	7.38	0.000	

AD is the variable of main interest in our research, the estimated coefficient of AD is 18.56 which are positive. The *t* statistic equals to 2.48 with *p*-value 0.015, therefore, the null hypothesis (α3=0) can be rejected at the significant level of 5%. It implies that advertising does have positive and statistically significant effect on market value of firms. From the Table 2, the estimated coefficients α1 is 1.05, α2 is 9.56 and α4 is 23.21. Also, from the *t*-test statistics and *p*-values attached to each

estimated coefficient, we can reach the results that the coefficients of independent variables book value, earnings and dividend all positive and statistically significant at the significant level 5%. Thus, it shows that they all can be considered as important determinants for market value and it offers good reasons for these variables to be chosen. More importantly, the *R*-squared statistic which can be a measurement of the success of the model shows that 54.72% of the variation in the dependent variable can be explained by the independent variables.

The following Table 3 presents the descriptive statistics of the regression model (2)：

Table 3
Descriptive Statistics of Regression Equation (2)

Variables	Obs	Mean	Std.Dev	Min	Max	Corr
2006MV	30	113595.4	90078.86	15487.5	363611.3	
2006BV	30	34226.06	33820.12	3646.3	119783	0.83
2006E	30	6562.207	5994.133	778	21538	0.86
2006D	30	2451.603	2853.537	123.4	10420	0.82
2006AD	30	1471.437	1029.005	453.3	4898	0.36
2005AD	30	1432.278	1027.91	405.23	4687.73	0.34
2004AD	30	1288.849	954.3327	227.3	4090.12	0.22

From the correlation statistics, it is implied that all independent variables especially 2006 book value, 2006 earnings and 2006 dividend are highly correlated with the dependent variable 2006 market value. The last table shows the estimation results of regression model (2)：

Table 4
Estimation Results of Regression Equation (2)

Variables	Coefficient	Std Err	t	P-value	R-Squared
2006BV	1.02	0.410	2.49	0.019	0.8549
2006E	14.36	3.384	4.24	0.000	
2006D	13.08	5.731	2.28	0.031	
2006AD	20.91	7.858	2.66	0.013	
2005AD	22.16	13.516	1.61	0.113	
2004AD	20.49	17.412	1.18	0.249	

The estimated coefficient of 2006 advertising is 20.91 with *t*-statistic 2.66 and *p*-value 0.013 which is positive and significant. The results also show that other independent variables in the regression model, 2006 book value, 2006 dividend, and 2006 earnings, all appear to have significant and positive effect on 2006 market value. Since the purpose of the regression is to prove the long-lasting benefit of advertising on market value. Thus,

our focus should be the estimated coefficients of 2005 advertising and 2004 advertising. The estimated coefficient of 2005 is 22.16 and the estimated coefficient of 2004 is 20.49. Both positive coefficients imply that 2004 advertising and 2005 advertising can bring positive effect on 2006 market value. However, through the test statistics and p-values. We cannot prove the results obtained are statistically significant at 5% significance level, in another words, we are lack of evidence to support the long-lived effect of 2004 advertising and 2005 advertising on 2006 market value. Nevertheless, the insignificant results may be due to the limitations of our regression model which we will discuss in the next section.

3.4 Limitations of Regression Model

In the second regression, the estimated results do not fit our prediction. Since the R-Squared statistic of the regression model (2) is 85.49% which is explained as 85.49% of variation in the dependent variable could be explained by explanatory variables, so it means that the regression model employed can be seen as 'good fit'. It is supposed that the reason to get insignificant results may due to several reasons. At first, there may be sample selection bias exist in our selection process, so firms in our sample may not be as objectively represented as expected. Secondly, the sample size is not large enough and the research period is also limited. Since the aim of the regression (2) is to study the benefit of previous advertising on current market value. Hence, it should be effective to include more firms and longer time period in our model to get more precious results. Thirdly, the multicollinearity among explanatory variables may affect our results.

Although the expected results are obtained from regression equation (1), it is not avoidable to have some general limitations in our model. First of all, it may still have sampling bias in the first regression model. Secondly, the sample size is not big enough to get more precious results. Thirdly, there may be some variables which could have effect on our results that are not being taken into consideration. For example, there is evidence in the previous studies that more than advertising, R&D variable could also be seen as intangible capital. However, the omitting of R&D variable will not affect our overall results, it may only influence the preciseness of the estimated coefficient. At last, most of the data resources come from the firms' annual reports which are presented to attract more interests from investors. Thus, the preciseness of the dataset cannot be guaranteed.

CONCLUSION AND IMPLICATIONS

The overall results in section 4 suggest that advertising expenditure would lead to positive and significant effect on market value. This conclusion can provide evidence to support the "intangible capital aspect" of advertising;

therefore, advertising could be viewed from the capital-investment outlay which plays important role in firm valuation. Since market value is expected to be the measurement of the future potential profit stream of firms, and the positive and significant association between market value and advertising implies the intangible capital nature of advertising which may also lead to production of economies as well as the building of intangible assets. According to the second regression model, the both estimated coefficients of previous advertising on current market value are positive; they show that the effect of advertising on market value as well as on firms can be considered as long-lasting benefits. However, the test of significance fails to offer strong evidence to support this conclusion. Nevertheless, in spite of the explanation of possible limitations during the regression model, there is still much more possibility for advertising to have long-lived effects on firms.

The findings of the present research carry certain significant implications for future study. First of all, advertising should be considered as intangible capital which needs capitalization and amortization during the estimated economic lives. But previously, advertising is generally recorded as expenditure for firms, which would "lead to downward bias in the value of assets, current earnings and shareholder equity. The financial statement of companies may not reflect the true value of the firm because of a widening gap between accounting book value and market values due to intangible assets not being capitalised" (Maqsood, 2007, p. 20). Therefore, this study can provide some accounting policy suggestions concerned with record of advertising which would truly reveal their firm values. More importantly, the study calls our awareness that the policy focused on advertising should be revised and reconsidered by firms based on the point that advertising does have intangible capital aspect and could possibly bring long-lived effect on firms. Put it in another way, rather than only considering the sales revenue advertising could incur, firms should keep a close watch on the maximizing profits of advertising from long-term perspective.

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