# CUMULATIVE ADVERTISING EFFECTS: PRESENTATION ON FINANCIAL STATEMENTS OF LONG TERM ADVERTISING EFFECTS ON SALES

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**Abstract**
*Accounting is a system which has tremendous responsibility of maintaining information to both internal and external environments of business. The reliability and accuracy of this information is of crucial importance in the entire operating and performance evaluations of the business. Instant access to accurately maintained and updated accounts at any point of time creates multiple benefits for marketing department as well as for other departments. Within the context of advertising effectiveness, importance of reliable information in measurement of advertising effects on sales reveals the strong interaction between marketing and accounting departments.*

*Some researches on measuring the effects of advertising on sales present that current expenditures on advertising do not have their full impact on sales in the current accounting period. Instead, advertising effects on sales is asserted to extend well into future. Therefore, within the perspective of cumulative advertising effects, expensing of advertising expenditures should be in the accrued periods rather than the current accounting period.*

*The aim of this research is to present a new method for accounting the long-term effects of advertising on sales. For this purpose, suggestions based on numerical examples are developed to demonstrate the proposed accounting method. By means of this method, financial statements maintain reliable and accurate information to all related groups including marketing department. Thus, this accurate quantitative information can be used to objectively evaluate advertising effectiveness.*

**Keywords**: Accounting, cumulative advertising effects, advertising expenditures, periodicity, advertising effectiveness

## 1. Introduction:

Decision making in all businesses are based on sound analysis of financial statements which is a product of accounting information system. Therefore reliable and accurate data gathering and reporting of departments' activities have a crucial importance in making decisions. Accounting is one of the primary data sourcing system with tremendous responsibility of maintaining information to both businesses' internal and external environments. Data are gathered from various sources, collated, organised, analysed, interpreted and communicated to the end users for an informed economic decision making. Considering internal environment, there is a great interaction between all departments and accounting. Because, accounting department supplies all necessary data and information to all departments including marketing department. For example, cost analysis reports prepared by accounting department supplies information to marketing managers necessary for most effective decisions related to planning, managing and controlling of marketing strategies and activities (Akdoğan, 1982, p. 73).

Marketing accounting uses mostly cost accounting principles to maintain the required information by the marketing department (Ceran, 2008, p. 14). Closing the unprofitable businesses and accounts, choosing the most profitable distribution channels, determining optimum levels of sales and minimum levels of order are made by the marketing cost analyses (Akdoğan, 1982, p. 73).

However, sometimes departments cannot supply required accurate information from accounting department. Inconsistency of activity data in performance reports with financial reports may force managers to recollect cost data and to prepare a second report. This process means waste of time and effort with extra analyses and reports to accounting department (Hacırüstemoğlu and Şakrak, 2002, p. 607).

The effects of advertising expenditures on gross sales and net operating profits presented with income statement may be used to measure the advertising effectiveness by the marketing department. Some researches on measuring the advertising effects on sales states that those current expenditures on advertising do not have their full impact on sales in the current accounting period. It is asserted that advertising effects on sales extend well into future and it is known as the cumulative effects. Considering the cumulative effects of advertising on sales, expensing of advertising expenditures in the current accounting period rather than in the accrued period leads to unreliability of accounting data and reports. Using of these unreliable data for measuring advertising effectiveness also yield misleading results. Therefore, expensing of advertising expenditures should be in the accrued period regarding the long term effects. However in current accounting practices, long-term effects of advertising on sales are disregarded.

## 2. Advertising Concept and Researches on Long-Term Effects of Advertising on Sales

### *2.1. Advertising Concept*

American Marketing Association (1995) defines advertising as 'the placement of announcements and persuasive messages in time or space purchased in any of the mass media by business firms, nonprofit organisations, government agencies, and individuals who seek to inform and/ or persuade members of a particular target market or audience about their products, services, organisations or ideas'.

Advertising is a component of integrated marketing communications (Clow and Baack, 2004, p. 165). Communication is a transactional process between two or more parties whereby meaning is exchanged through intentional use of symbols (Engel and the others, 1991, p. 61). Advertising involves four key components in a communication process. First, the sender is the originator or source of the message. Agents or consultants may actually do the work on behalf of the sender. Second, the message is the actual information and impressions that the sender wishes to communicate. Third, the media are the vehicles or channels used to communicate the message. Fourth, the receivers are the people who receive the message (Pickton and Broderick, 2005, p. 6, Berkowitz and the others, 2000, p. 493). They react either positively or negatively depending on the attitude which develops after cognitive and affective evaluations.

With the communication process; informing and attracting attention of receivers and influencing them, reminding product or brand, adding value and assisting other company efforts are aimed (Shimp, 2007, p. 246-248, Hawkins and others, 1992, Clow and Baack, 2004, Pickton and Broderick, 2005).

Effective advertising campaigns produce growing sale (Lavidge and Steiner, 1961, p. 59), profit and market share for achieving these objectives.

In developing process of an advertising campaign, marketing managers start by identifying the target market and buyer motivators. Then they make four critical decisions as setting objectives, deciding budget, creating message, choosing media (Kotler, 2003, p. 312). At last, the degree to which objectives are achieved is measured as advertising effectiveness in the advertising management process (Kotler, 1997, p. 638-661).

Advertising effectiveness researches present that various approaches can be used to measure effectiveness for pre-testing and post-testing. These approaches can be grouped as it follows (Wang and Minor; 2008, p. 198; Stewart and Furse, 1982, Wiles and Cornwell, 1990):

- The methods depend on verbal measures, such as self-reported assessments of intentions, attitudes, recalls, or emotions.
- The methods depend on behavioral measures, such as actual purchase, amount of time and money spent and effects of advertising on sales or store patronage.
- The methods depend on psychophysiological measures, such as pupil dilation, eye movement, brain imaging analysis or heart rate.

Most marketing managers tend to choose the conventional methods involved verbal or behavioral measures because of their relatively lower costs. Analysis of advertising effects on sales is a technique classified in behavioral measurement methods. Since advertising expenditures are mainly used to increase sales and advertising effect on sales are used to prepare the subsequent advertising budget, this analysis is usually preferred.

### *2.2. Measurement of Advertising Effects on Sales*

Sales are influenced by many factors beyond advertising (Kotler, 2003, p. 318). Usually there is a time lag between consumers' exposure to advertising and their opportunity to purchase the advertised brand (Keller, 1987, p. 316). This time lag may change depending on personal factors such as consumers' cognitive and affective evaluations about advertising message. In addition to personal factors, peripheral factors such as competitor brands' ads, social relationships and their impressions about advertised product and availability of product/brand may influence the time lag. The measurement of advertising effects on sales is a challenging method because of the controlling requirement of all variables.

H.D. Wolfe (1962) noticed that unless the other sales-effect factors comparatively stable, measurement of advertising effectiveness by using sales is not plausible. Beyond these challenges, marketing managers want to determine whether they invest for advertising more than enough (Kotler, 1997, p. 659). Because advertising campaigns' productivity as an investment project has to be measured (Dean, 1966, p. 21).

There are two methods to measure advertising effects on sales. First method, the time series analysis assumes that past years' trend of relation between sales and advertising expenditures show the future years' trend. According to this assumption, correlation and regression analyses are conducted. Second method, the empirical method, uses a cluster of market that has the same sales/advertising expenditures ratio.

Markets in the cluster are grouped according to their lesser, stable, and higher advertising expenditures in respect to base year's data. According to this, effects of advertising on sales are measured assessing the differences in sale levels (Cemalcılar, 1988, p. 369, Babacan, 2008, p. 305; Kotler, 1997, p. 660). Several variables that make it difficult to measure advertising effects on sales can be taken into account by means of empirical models or multivariate statistical analyses (Kotler, 1997, p. 367).

Most researches conducted on this field are criticised in terms of insufficient information and/or model structure and/or investigation. Use of linear regression analysis instead of multivariate regression model in researches is another subject of criticism. Despite the limitations of these researches, most of them reveal that sales are positively influenced by the stable advertising expenditures. The hypothesis of cumulative advertising effects claims that current expenditures on advertising do not have their full impact on sales in the current accounting period. Instead, their impact on sales is assumed to extend well into future. Besides supporting researches, there are also researches unable to determine the cumulative effects (ex. Clarke 1976, Parsons and Schultz 1976, Aaker, Carman and Jacobson 1982). In contrast to the hypothesis of cumulative advertising effects, the hypothesis of current advertising effect states that sales are a function of current advertising expenditures and a carryover effect which cannot be completely attributed to past advertising expenditures (Weiss and Windal, 1980, p. 372).

### *2.3. The Researches That Measure Advertising Effects On Sales By Means Of Time Series Analyses*

Six researches are conducted in time series analysis to measure short-term and long-term effects of advertising expenditures on sales. These are summarized and discussed below.

Ronald S. Vaile (1927) conducted an analysis on the effect of magazine advertisements on sales of 250 firms. The research is based on years 1920-1924, including the recession period of 1920-1922. Some firms are eliminated because of the inconsistent patterns of increasing or decreasing advertising expenditures over the study period. The research found that, across all industry groups, increasing advertising was associated with increasing sales for each of the four years. In contrast, decreasing advertising was associated with decreasing sales for the same period. Firms that made no advertising had steady sales. The results were stronger for personal items and clothing. Only exception was car industry that had higher sales for no advertising than for advertising increases or decreases. Ford was developed a lower price strategy for recession period. Vaile attributed that difference due to the increased sales of Ford automobiles. This research has been criticised positively in terms of its large sample mass, data use based on a long period and creative research design. On the other hand, research is criticised due to lack of control on other variables effective on the sales (Tellis and Tellis, 2009, p. 310).

Kristian S. Palda (1964) conducted an analysis of Lydia Pinkham's vegetable compound's advertising effects on sales from 1908-1960 by a multivariate regression model. He calculated the short-term and the long-term marginal sales effects of advertising. Marginal advertising dollars increased sales by only 50 cents in short-term, suggesting that Pinkham spent too much on advertising. But the long-term marginal sales effects were three times as large. Palda calculated a post-test marginal rate of return on company advertising of %37 over the whole period (Kotler, 1997, p. 660).

Rusell S. Winer (1979: 563, 575) used a technique called Varying Parameter Regression (VPR) to estimate the parameters of a demand function. Data of research on Lydia Pinkham's vegetable compound was used to analyse. The results indicate that the effectiveness of current advertising dollars increased over time but carry-over effects declined. In this research, despite the use of a different model, short-and long-term impact of advertising on sales were supported.

Meldrum and Fewsmith (1979) (The Cleveland advertising agency) surveyed marketing managers to examine the effects of advertising on sales during the 1974- 1975 recession. Data was gathered from managers in 143 firms. They analysed the impact on sales in five subsequent years in response to whether firms cut or maintained their advertising expenditures in 1974 and 1975. The results show a strong impact on market share of maintaining advertising expenditure. In the years that followed the recession, firms that did not cut advertising expenditures experienced higher sales than firms that cut advertising expenditures in 1974 or 1975 or both years. In addition to this, the sales of the firms that kept advertising during the recession continued to grow up to four years after recession (Tellis and Tellis, 2009, p. 310- 312). This research is based on a recession and a follow-up period that provides useful information of advertising effects on sales. On the other hand, it is criticised due to lack of control on other variables and lack of measuring effects of increased advertising expenditures.

McGraw-Hill Research's Laboratory of Advertising Performance (1986) analysed the effects of advertising on sales between 1981 and 1986. Survey covers 600 manufacturing firms for a period of six years including 1981-1982 recession. Firms were grouped according to their decreased, increased or maintained advertising expenditures during the recession. Data of 1981 is taken as the base data for each of subsequent five years. Research findings show that all firms increased their sales in the following five years with respect to 1981 (the first year of the research). However, firms that did not reduce advertising expenditures during both years of the recession, had sales that grew to almost 340% for the five years period. As a contrary, firms that reduce advertising expenditures in either first year or both years of recession had much more modest increases on sales (approximately 200%). These findings support that keeping steady or increasing advertising expenditures during a recession provides sales growth at a high level. When compared with others, this research identifies a more homogeneous group of samples and obtains data from an institution which is internationally recognized (Standard and Poor's). Moreover, classification of historical data according to the periods of pre-recession (2 years), economic recession (2 years) and post-recession (2 years) is positively criticised. However, this research did not control other variables and did not permit any strong conclusions based on causality (Tellis and Tellis, 2009, p. 312- 313).

Thomas Kamber (2002, p. 108-120) analysed the effects of advertising on sales for a six years period covering the 1990-1991 recession for 822 firms by means of four different methods. First method involved splitting the data into two groups. The first group included firms that decreased advertising expenditures during the recession and the second group included firms that maintain steady or increased advertising expenditures during the recession. The mean sales indices were calculated and plotted over the six year period. The results indicate that firms that maintained or increased advertising expenditures had larger sales growth than firms that reduced advertising expenditures. Firms that maintained or increased advertising had a 7% annual growth in sales in 1991 compared to the other firms. This gap in sales growth between two groups widened to 25% by 1995. The second method was used to measure the advertising effectiveness by means of bivariate correlation between change in advertising expenditures during recession and sales growth in each subsequent year. Therefore it allows assessing the impact of advertising on sales continuously. According to this evaluation there is a strong correlation between increasing advertising expenditures during a recession and growth on sales for each year following the recession. In the third method the advertising effectiveness was analysed by means of a multivariate regression model. The model measured the percentage change in sales for a 1 percent change in advertising expenditures after controlling for several other independent variables such as total market value, stock price earnings ratio (R/E), stock volatility (beta), total 1990 net sales, and The S&P credit ratings. The results present that advertising expenditures was significant in explaining sales growth after controlling for the other independent variables. The model could explain between 21 to 37 percent of the variation in sales growth in various years modeled. This research has more strengths than the others. However, it has a limitation that did not analyse the effects of advertising on sales by industry (Tellis and Tellis, 2009, p. 315).

Beyond these researches, the researches that used sales as data to analyse the effects of advertising on profit (Telser, 1962; Frankenberger and Graham, 2003; Kijewski, 1982; Biel and King, 1990; Meldrum and Fewsmith, 1979; McGraw- Hill Research, 1986) and on market share (Kijewski, 1982; Biel and King, 1990; Montgomery and Silk, 1972) are also available.

### 2.4. The Researches That Measure Advertising Effects On Sales By Means Of Empirical Analyses

Only three researches that analyse short-term and long-term effects of advertising on sales with empirical methods are reached out. These are summarized and discussed below.

Clarke (1976, p. 345-356) conducted a survey on previous studies about the duration of cumulative advertising effects on sales. The results of the survey present that the duration intervals derived from the annual models are too long. The annual studies show a nearly unanimous presence of data interval bias, whereas the shorter data interval studies do not. According to results in 70 studies, the pattern is consistent. The estimate of the coefficient of the lagged dependent variable also was found to be biased by use of an annual data interval. This bias may be in effect on shorter data intervals. The published econometric literature indicates that 90% of the cumulative effect of advertising on sales of mature, frequently purchased, low-priced products occurs within 3 to 9 months of the advertisement. As a conclusion Clarke asserted that advertising's effects on sales lasts for months rather than years.

Assmus and the others (1984, p. 65-73) used estimated parameters from 128 models reported in 22 studies published before 1981 to analyse advertising's short-term and long-term effects on sales. The approach, a form of meta-analysis called 'replication analysis', treats the studies as imperfect experimental replications and uses ANOVA to identify sources of systematic variation. As a result, short-term elasticities[1] in models which incorporate carryover effects are significantly smaller, short-term elasticities in models containing exogenous variables are also lower, and long-term elasticities are even lower. Cross-sectional data produce higher short-term elasticities than time series, indicating that cross-sectional disaggregation of time series should be done whenever possible. In addition to these, elasticities differ among products and settings, being higher for advertised food products and higher in Europe than in the US.

Bemmoaor (1984, p. 298- 307) tested for the existence of a threshold effect in a consumer goods market on the basis of monthly time-series and cross-sectional data. A switching regression model which assumes a concave function to a cutoff point seems consistent with the evidence. In this research, the cutoff point below which advertising has a little effect is estimated and the shift of advertising elasticity is assessed. The results present that advertising elasticity increases above the cutoff level, price elasticity is larger for heavily advertised premium brands than for less advertised low-price products, and a minimum threshold level[2] on advertising share is consistent with the theory.

## 3. Accounting of Advertising Expenditures within the Context of Cumulative Effects

In practice, advertising expenditures are assumed as the expense of the current accounting period and they are presented in income statement under the operational expenses. However, in the case of expectations based on a long term effect of advertising expenditures on sales, expensing these expenditures in the current accounting period leads to inaccurate information by financial statements (Abdel-khalik, 1975, p. 658). Within this context, it is proposed that advertising expenditures should be capitalized at the beginning and

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[1] Advertising elasticity of demand is the change in sales that results from each monetary unit (e.g. each pound or dollar) that is spend on advertising.

[2] Cumulative effect of a sustained advertising campaign that brings about customer recognition of a brand or product in the form of a significant jump in sales revenue. Threshold effect is the expenditure level at which this effect occurs. It is then used as a benchmark for setting future advertising budgets.

then they should be expensed depending on the estimation. According to this, the advertising expenditures which impact the sales in the subsequent periods should be acknowledged as an asset. This perspective is also consistent with the definition of asset in the conceptual framework. In Paragraph 49 of the conceptual framework, asset is defined as ‘a resource controlled by the enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise’ (International Accounting Standards Committee Foundation, 2003, p. F-19). The expected benefit from advertising campaign in subsequent periods is cash and cash equivalent that is received in return of the main operation of the enterprise.

In order to convert the asset to expense, conversion rates of expense should be calculated first and then, amount of expense should be determined in terms of these rates. The effect of possible variance should be presented in the income statement during the calculation of conversion rates of expense. The practice in question is a requirement of the periodicity concept.

### *3.1. Calculating Conversion Rates of Expense and Determining Amount of Expense Based on Conversion Rates*

Conversion rates of expense can be calculated in two ways. They may be calculated either when the advertising expenditure is made at the outset or on the realised sale at the end of the period. The common ground of both methods is estimating the effects of advertising on sales in terms of duration, amount or volume.

#### *3.1.1. Determining Conversion Rates of Expense at the Outset*

The businesses may estimate annual benefit expectations depending on advertising expenditures. Models developed based on previous experience may be used in estimation. In this case, estimated rates are used for conversion of advertising expenditures to expense.

To illustrate, if it is estimated that the effect of advertising expenditure of 20.000$ will last for 3 years and it will lead to an increase in sales by 50% in the first year, 30% in the second year and 20% in the third year, expensing of advertising expenditures will be recorded as follows:

1$^{st}$ Year Advertising Expense = 20.000 X 0.5 = 10.000$

2$^{nd}$ Year Advertising Expense = 20.000 X 0.3 = 6.000$

3$^{rd}$ Year Advertising Expense = 20.000 X 0.2 = 4.000$

#### *3.1.2. Determining Conversion Rates of Expense According to the Realised Sale Volume*

In this method, total expected increase in sales through advertising expenditure is determined at first. Afterwards, realised and expected increases in sales are proportioned to calculate the amount of advertising expenditure that should be expensed in the related period. This practice is similar to units of production method of depreciation.

To illustrate, expected increase in sales via an advertising expenditure of 100.000$ is 1.000.000$ in three years. If the concerned increase is determined as 700.000$ in the first year, then, volume to be converted to expense is calculated as follows:

$$\underset{(CRE)}{\textit{Annual Conversion Rates of Expense}} = \frac{\textit{Annual Volume of Increase in Sales}}{\textit{Total Expected Volume of Increase in Sales}} \quad (1)$$

1$^{st}$ year CRE = 700.000 / 1.000.000 = 70%

$$\underset{(AE)}{\textit{Calculation of Advertising Expense Share}} = \textit{Advertising Expenditure} \times \textit{CRE} \quad (2)$$

1st year AE = 100.000 x 0.7 = 70.000$

In order to calculate the volume to be expensed for subsequent years, annual advertising expenditure will be calculated at the end of each year by considering the related volume of realised sales using the same methodology.

The examples given over sale volume can also be developed in terms of sale amount. In this case, amount of expected annual and total sales are proportioned to calculate the conversion rates of expense per year. Afterwards, advertising expense per year is determined by multiplying calculated amounts with total advertising expenditure.

To illustrate, expected increase in sales via an advertising expenditure of 100.000$ is 200.000 units in three years. If the realised increase is determined as 60.000 units in the first year, conversion rate of expense and annual advertising expense are calculated as follows:

$$\textit{Annual Conversion Rates of Expense (CRE)} = \frac{\textit{Annual Amount of Increase in Sales}}{\textit{Total Expected Amount of Increase in Sales}} \quad (3)$$

1st year CRE= 60.000 / 200.000 = 30%

1st year AE = 100.000 x 0.3 = 30.000$

### *3.2. Evaluating Variations in Determined Volume of Advertising Expenditures*

Realised expenditure volume and expectation of benefit are used in calculating conversion of expense volume. However, the volume converted to expense should be reevaluated for each period considering the changing conditions. The reason could be both benefit duration of advertising and error probability in estimations. At the end of the reevaluation, estimations may be revised if deemed necessary.

In evaluating revisions in volume, The Standard No. 8 regarding Accounting Policies, Changes in Accounting Estimates and Errors is taken as basis. Uncertainty in marketing operations may change the estimations, even if the estimations of the volume converted to expense is based on reliable information. The revisions made in estimation based on reevaluation are not related with the previous periods as per Paragraph 34 of the Standard. According to the provision in Paragraph 36, 'the effect of a change in an accounting estimate, will be recognized on a prospective basis, including it in the result of:

(a) exercise that takes place in the change, if it affects only one year, or

(b) exercise that takes place in the future and change, if it affects a number of years'.

Then it is presented in the financial tables both in the current period of the revision and in the following periods by correlating with profit-loss (www.worldgaapinfo.com/pdf/IAS/IAS8.pdf).

To illustrate, expected increase in sales via an advertising expenditure of 200.000$ is 10.000.000$ in four years. It is estimated that there will be an increase of 5.000.000$ in the first year, 3.000.000$ in the second year, 2.000.000$ in the third year and 1.000.000$ in the forth year. Accordingly, conversion rates of expense are calculated as follows:

$$\textit{Annual Conversion Rates of Expense (CRE)} = \frac{\textit{Expected Annual Volume of Increase in Sales}}{\textit{Total Expected Volume of Increase in Sales}} \quad (4)$$

1st Year CRE = 5.000.000 / 10.000.000 = 50%
2nd Year CRE = 3.000.000 / 10.000.000 = 30%
3rd Year CRE = 1.500.000 / 10.000.000 = 15%
4th Year CRE = 500.000 / 10.000.000 = 5%

The increase in sales realised consistent with the first year and (200.000x50%) 100.000$ is recorded as advertising expenditure among marketing expenses. The expected increase in sales for the second year realised different from the estimations and the effect of advertising on sales became 4.000.000$. It is estimated that the effect of advertising will expire in the third year without extending to the fourth year.

According to this estimation, advertising expense presented in the marketing expenses of the second year is 80.000$ which will be calculated with (4.000.000/10.000.000) 40% rate (200.000x40% = 80.000$). Expected advertising expenditure for the third year will be calculated as 20.000$.

## 4. Summary and Conclusions

Marketing department has a crucial role on advancing sales by the advertising. Advertising effect on sales is a significant topic for firms that consider advertising as an economic investment. This effect can be also used to measure advertising effectiveness. In this evaluating process, managers benefit from data and information maintained by accounting. The researches on advertising effects on sales are based on time series and empirical methods. Hypothesis of all of them is cumulative advertising effects and it implies that current expenditures on advertising do not have their full impact on sales in the current accounting period. Instead, their impact on sales is assumed to extend well into future. Within the context of this hypothesis, in addition to supportive evidences, there are also researches that unable to determine this effect.

However, long-term effects of advertising on sales does not present on financial statements in the current accounting practices. In accounting system, advertising expenditures are expensed to the current accounting period. This implementation causes inaccurate measurement of profit of the period, profit of share and advertising effectiveness if there are cumulative advertising effects. There is a possibility to avoid these inaccurate outcomes by developing a method that presents the long-term effects of advertising on sales to accounting system. According to this, advertising expenditures that estimated to increase sales for more than one period should be capitalized at first. Afterwards, the expenditures should carry forward to operational expenditure in the ratio of the expected annual increase on sales or in the amount of increased sales by the end of each period.

However, these estimations have to be revised each year. Because both of the duration of advertising effects on sales and the ratio of advertising effects on sales are based on estimations. According to related accounting standard, these kinds of estimations must be corrected in ways that impact current and future periods, not retroactively. Thus, revisions of estimates present on performance statements and the accurate amount of profit can be calculated.

As a conclusion, this approach enables to report advertising expenditures effects on profit or loss of the accrued period by evaluating accurately cumulative advertising effects. It is expected that productivity and effectiveness of operating profit, advertising budget, advertising campaign and integrated marketing communication strategies can be advanced by expensing advertising expenditures according to periodic effects on sales.

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