European Journal of Social Sciences
ISSN 1450-2267 Vol.28 No.3 (2012), pp. 308-319
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http://www.europeanjournalofsocialsciences.com

The Effect of Marketing Communication on Sales Performance – A Study on the Personal Care Industry in India

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Abstract

This study is sought to examine the causal relationship between the variables of Integrated Marketing Communications (IMC) like advertising, sales promotion, personal selling, direct marketing and net sales revenue. Further it seeks to study their long-term and short-term relationship so as to understand the impact of one variable on another. The empirical study with ten year quarterly data of nine firms in the Indian Personal care industry consisting of multinational companies and large Indian firms reveals that not only there is a long term cointegrating relationship among net sales and IMC, but also there is an appropriate Error Correction Model which explains how the changes in one of the variables change the other and at what pace. The study culminates by establishing causal relationships between the two variables and sounds a caveat for brand managers of the Personal care industry in India that the returns of an IMC campaign in terms of sales may not be as inviting as it may seem.

Keywords: Advertising, Causality, Cointegration, Net sales, Sales Promotion, Vector Error Correction.

Introduction

The Government of India started the economic liberalization policy in 1991. Post 1991, the country has witnessed economic reforms that have been evolutionary and incremental in nature. The economic policy changes opened the country to the world market and subsequently to global competition from different multinational companies. In the wake of such intense competition most business houses in India started to realize the need for being proactive in communicating their product and service offerings to the consumer. It is not enough for business organizations to have quality products and services to offer. To generate sales and achieve profit, the marketers need to communicate the attributes and benefits of their products or services to the consumers. Advertising and other forms of

promotions have evolved into important communications tools that give business organizations the ability to communicate their desired marketing messages to the consumers.

Promotion includes marketing activities used to inform, persuade, and remind the target market about an organization, its products, services and other activities so as to build a favourable image (Kazmi & Batra, 2008). Adebsi (2006) defined promotional mix as any marketing effort whose function is to inform or persuade actual or potential consumers about the benefits of a product with the intention of inducing a consumer to either start buying or continue to purchase the firm's product. The promotion mix consists of advertising, direct marketing, internet marketing, sales promotion, publicity and personal selling (Belch & Belch, 2003). The integration of all these promotional tools to create more avenues for customers to become aware, influenced, and ultimately, to make purchase can be called as Integrated Marketing Communication. Thus it is nothing but looking at the whole marketing process instead of focusing on individual parts (Kotler, 1999).

The most essential aspect of any business is to sell their brand(s), because sales sustain any business' existence (Okyere et al., 2011). Selling requires promotion in order to elicit the marketers' desired action on the part of the consumers. Future sales are influenced by promotional expenditures, which help in sustaining a perennial demand for the product or service and in positioning the product or service among the target customers. Firms that allocate a good portion of their budget to advertising and other promotional tools, expect this expenditure to contribute handsomely to the financial benefits of the firm. The benefits of promotional expenditures take the form of future cash flows, which derive from future sales (Graham and Frankenberger, 2000). Business organizations, over the years, have given paramount importance to net sales revenue. Thus it becomes imperative for organizations to measure the effectiveness of marketing communications campaigns on generation of sales revenue so that they get to know whether their advertising and sales promotion expenditures are having asset value or not.

Review of Literature

A number of studies have been done to understand the various aspects of interrelationship between advertising and other forms of promotions, and sales. A brief review of the research studies conducted at different points of time is presented in the following paragraphs.

Verdon et al (1968) studied the relationship between advertising and aggregate demand, and concluded that advertising have a positive relationship with aggregate demand.

Abdel-Khalik (1975) found from his study that advertising has long lived effects on sales in the food, drugs and cosmetic industries, and short lived effects on auto, tobacco, soap and cleaner industries.

Jagpal (1981) concluded from his study that radio advertising was ineffective in generating sales (number of savings and checking accounts) of a commercial bank.

In one of the studies, Lee (1994) took data of U.S. brewing firms and developed a model showing that poor performance of a firm leads to more advertising investments and hence more risk-taking attitude.

Dekimpe and Hanssens (1995) used sales and advertising media spending data of a chain of home improvement stores and used the Vector Auto Regressive modeling to show that temporary increases in advertising have a long term carry over effect on the brand's performance in some, but not all the stores.

White and Miles (1996) questioned the very nature of allocating funds pertaining to advertising as to whether they should be treated as a 'business expense and rationed as a component of a single year's working capital expenditure' or be studied as an investment and included in the capital budgeting process for a number of years together. They also set up a break-even decision model which would determine the minimum required change in sales to economically justify additional advertising expenditures.

Leong et al (1996) revealed that a strong positive relationship exist between advertising expenditure and sales by applying cointegration technique.

Leach and Reekie (1996) results of the Granger causality test revealed that advertising expenses caused sales but sales do not simultaneously cause advertising.

Metwally (1997) explained the variations in the growth rates of advertising expenditure of consumer goods and services in Australia during the period 1975-1995 by developing and testing a number of hypotheses. The regression results indicate, among other findings, that the growth in advertising expenditure is strongly correlated with the growth in sales and that movement in market shares exerts a significant effect on the growth in advertising expenditure.

Elliot (2001) found that advertising has a significant positive effect of on the food industry sales and he concluded this relationship to be stable.

Pagan et al (2001) used bivariate Vector Auto Regression model to study the effectiveness of advertising on sales and revealed that one time increasing in advertising expenditure leads to increase in the sales of orange with a one month lag.

Kamber (2002) found a measurable relationship between advertising expenditures and sales, even after controlling factors like company size, past sales growth, etc.

To see the effect of marketing communication industry-wise, Andras and Srinivasan (2003) conducted a study and concluded that consumer product organizations have higher advertising intensity while manufacturing product organizations have higher R&D intensity and that higher advertising intensity and R&D intensity leads to higher profits.

Frankenberger and Graham (2004) studied the effect of recessionary advertising spending by using cross sectional time series regression on a sample of 2662 firms and concluded that increasing advertising spending during recession leads to higher benefits than doing so during non-recession times.

Joshi and Hanssens (2004) postulated that advertising spending has a positive and long-run impact on firms' market capitalization i.e. the share price. They used 10 years of monthly data for several PC manufacturers and used the Vector Auto Regressive Model to study the impact of advertising and R&D spending on sales and profits and also went on to show that there is a positive impact of advertising on market capitalization.

Kim (2007) focused on the positive effect of advertising and publicity on corporate reputation and sales revenue. The study speculated that a firm's advertising and publicity generated favorable corporate reputations and high levels of sales revenues in certain firms. The hypotheses were tested by a time-series analysis using the panel data of 18 companies over a 21-year period from 1985 to 2005. The results indicated that advertising and publicity have significant effects on corporate reputation for certain companies.

A study conducted by Sudarsan (2007) showed that advertising influence sales, though its relative effectiveness was different for different categories of firms.

In another study, Sharma and Sharma (2009) revealed that the effect of advertisement on sales is more for manufacturing companies and less for non-manufacturing companies, which is a reflection of the study made by Andras and Srinivasan in 2003. Conversely, non-manufacturing companies need to spend more on advertisement to have the same level of sales revenue. This explains why non-manufacturing companies spend more on advertisement as compared to manufacturing companies.

Siddhanta, Banerjee, and Bandopadhyay (2012) found that there is cointegration between Integrated Marketing Communication and Net Sales revenue in the personal care industry in India. They also proposed an appropriate error correction model which showed the speed of adjustment of the variables.

The above review indicates that in general, majority of the studies have revealed positive relationship between promotional expenses and sales revenue. However at present, there is little research work in the above area in the Indian context, albeit, foreign studies being aplenty. The

objective, thus, is to address this gap and try to come out with plausible implications for Indian brand managers when they take advertising budget allocation decisions.

Research Objectives

This study attempts to analyze time series data pertaining to advertising, sales promotion, direct marketing and personal selling expenditures, collectively referred to as Integrated Marketing Communications (IMC) and hereinafter referred to as ASP expenses and its causal link with Net Sales revenue of some Indian, and Multinational firms operating in India in the Personal Care industry as categorized by Capitaline database. In a previous study by the same authors, evidence of cointegration was found among the aforesaid variables after the usual stationarity testing of the variables. The present research work has been designed as an extension of the earlier work where the authors will try to construct a Vector Error Correction (VEC) model and see whether ASP expenses and Net Sales revenue also share a short run relationship among them. Further, the present study aims to test the pair-wise causality relationship between the two time series variables.

Research Methodology

The data for the above empirical study is secondary in nature sourced from the Capitaline database of Capital Market Publishers India Pvt. Ltd. Quarterly time series data pertaining to selling & administrative expenses & net sales revenue for 9 firms in the Personal Care industry spanning over a period of ten years (June, 2001 – March, 2011), i.e. 40 observations have been mined from the said database for the purpose of the research. The choice of the industry is due to the fact that the investment in ASP in this industry accounts for a major portion of their budgeted expenditure and a substantial amount of it depends on the previous sales. Also, this industry is rather free from extreme seasonal fluctuations which mean we need not account for seasonality or structural breaks while analyzing the data. After accounting for missing values, only nine firms in the Personal Care industry had quarterly data for the above period.

The methodology used is to first check whether the variables in the time series are stationary or not. If not, we go on to check whether the time series are cointegrated or not. Two or more time series are cointegrated if, to a limited degree they share a certain type of behaviour in terms of their long-term fluctuations. If the time series are found to be cointegrated, then depending on the rank of the cointegrating vector, the Vector Error Correction (VEC) model or the Vector Autoregression (VAR) model need to be undertaken for the analysis. The logic for using the VAR framework is that time series data pertaining to ASP expenses & Net Sales show problems of endogeneity and carryover effects. Endogeneity problem occur when the current advertising and sales promotion budget depend on the sales of previous periods. Carry over effect takes place when previous advertising expenditure has an effect on current and future sales. Such a situation makes it difficult to distinguish the variables as exogenous & endogenous and it is in this spirit that Sims (1980) introduced the VAR framework which is appropriate in such circumstances when we have to work with different time series and capture the evolution and interdependencies between multiple time series. Finally, according to Engle and Granger (1987), cointegrated series must show causality in at least one direction. So, the Granger Causality test is also performed to see whether one time series is useful in predicting the other.

The authors have used the software packages Gretl, and EViews to analyze the data.

Since one of the purposes of the study is to check for cointegration among the two variables ASP expenses & Net Sales, the natural logarithms of these values instead of their absolute values are used after suitable transformation. Also log transformation reduces unnecessary variances in data which may give biased results, which is why this procedure is widely used. Almost any study in time series starts with the tests of stationarity. For this purpose, Correlogram analysis & the various stationarity tests like Augmented Dickey-Fuller (ADF) test, Philips-Perron (PP) test & the

Kwiatkowski-Philips-Schmidt-Shin (KPSS) tests were undertaken. A series is said to be stationary if the mean & covariance are constant over time & the auto-covariance of the series depends only on the lag between two time periods & not on the actual time at which the co-variance is calculated. The stationarity is first tested on the basis of the Sample Autocorrelation function (SACF), as in practice we have only a sample of the stochastic process. The SACF at lag *k* is defined as

$$\rho_k^* = \frac{\gamma_k^*}{\gamma_o^*} \tag{1}$$

which is the ratio of sample covariance at lag *k* to sample variance and always lies between -1 & +1. A plot of ρ_k^* against *k* is known as the sample Correlogram (Gujrati & Sangeetha, 2007). The autocorrelations of various lags for a stationary time series hover around zero. However, generally for a non-stationary time series, the autocorrelation coefficient starts at a very high value & declines very slowly towards zero as the lag lengthens. The choice of lag length is generally governed by the rule of thumb i.e. computing for one-third to one-quarter of the length of the time series. Alternatively, sufficiently large lag lengths can be chosen & appropriate lag selected through the Akaike or Schwarz information criterion. Engle and Granger (1987) argued that a non-stationary series is integrated of the order "d" if it can be made stationary by differencing the series "d" times. The ADF test without trend and with intercept is represented by the following equation

$$\Delta Y_t = a_0 + b_1 Y_{t-1} + \sum_{i=1}^{k} c_i \Delta Y_{t-1} + \varepsilon_t \tag{2}$$

where $\Delta Y_t = \Delta Y_{t-1}$, etc. ε_t is the white noise error term, Y_t is the variable of interest & *k* is the number of lags chosen by the Schwarz Bayesian Criterion (SBC). The null hypothesis of $b_1 = 0$ i.e. presence of unit root or non-stationarity of *Y* is tested against the alternative hypothesis of $b_1 < 0$ and if the tau statistic of the coefficient from the ADF tests is significantly less than the critical values, then the null hypothesis is rejected which implies the series is stationary. The Philips-Perron (1989) test is simultaneously performed along with the ADF test to check the stationarity of the series. It is based on the ordinary least square (OLS) estimator α^* of α in the model,

$$Y_t = \beta + \alpha Y_{t-1} + \varepsilon_t \tag{3}$$

where ε_t is the error term & Y_t is the variable of interest & the null hypothesis is that of non-stationary against the alternative hypothesis that the series is stationary. Finally the KPSS (Kwiatkowski et al., 1992) test is conducted which has a null hypothesis opposite to that of the earlier two tests. Here, the null hypothesis is that of stationarity against the alternative hypothesis of non-stationarity. The KPSS test statistic is represented as

$$\rho = \frac{\sum_{t=1}^{T} S_t^2}{T^2 s^2} \tag{4}$$

Where $\frac{1}{T^2}\sum_{t=1}^{T} S_t^2$ is the normalized sum of squared partial sums & s^2 is the consistent estimate of the long-run variance, σ^2. If the value of the test statistic is higher than the critical value, the null hypothesis is rejected implying the non-stationarity of the series. After checking for the stationarity of the variables, the time series are tested for cointegration which will make it clear whether they share any long term relationship among them. Before proceeding with the cointegration test, the lag order of the two time series need to be determined. We apply the VAR lag order selection method to select the appropriate lag length which uses the minimum of Akaike Information Criterion (AIC), SBC, & probability of Likelihood Ratio p(LR) for its purpose. Once the lag order selection is done we go ahead with the Johansen cointegration test. According to Johansen (1988), a p-dimensional VAR model with k lags can be defined as

$$Y_t = c + \prod_1 Y_{t-1} + \prod_2 Y_{t-2} + \ldots + \prod_k Y_{t-k} + \varepsilon_t \tag{5}$$

where Y_t is a (p x 1) vector of p endogenous variables, $\prod_1, \prod_2 \ldots$ are (p x p) matrices & ε_t is the error term. Johansen and Juselius (1990) show that such a cointegration test may lead to three possibilities:

i. The rank of $\prod$ can be zero in which case there is no cointegration among the time series in question and the VAR model is applied in first differences after making the series stationary.
ii. The rank of $\prod$ can be full in which case the series are stationary & a VAR in levels can be done.
iii. The rank of $\prod$ can be anything between 1 & (p-1) in which case the VECM needs to be applied.

The cointegrating equation above can then be expressed in a VEC model as

$$\Delta Y_t = c + \prod_k Y_{t-k} + \sum_{i=1}^{k-1} \theta_i \Delta Y_{t-1} + \varepsilon_t \quad (6)$$

where Δ denotes difference operator, $\coprod \& \theta$ are (p x p) matrices, k is the appropriate lag length & ε_t is the error term and $\prod_k$ contains the vector of loading matrices which denotes the speed of adjustment from disequilibrium. As a final step, the Granger causality test is administered. According to Granger, "X granger causes Y" if the past values of X statistically improve the prediction of Y. The causality between two time series X & Y can thus be represented as

$$X_t = \sum_{i=1}^{k} a_i Y_{t-i} + \sum_{j=1}^{k} b_i X_{t-j} + \varepsilon_{1t} \quad (7)$$

$$Y_t = \sum_{i=1}^{k} c_i Y_{t-1} + \sum_{j=1}^{k} d_i X_{t-j} + \varepsilon_{2t} \quad (8)$$

where k is the chosen lag length & ε_{1t} & ε_{2t} are the error terms. The F value of the two regressions are checked against the critical values and if they are greater than the critical values, the null hypothesis of "X does not granger cause Y" or vice versa is rejected. Thus there can be four possibilities to the Granger causality test, i.e. either

i. X granger causes Y, or
ii. Y granger causes X, or
iii. There is bilateral causality or feedback when either granger cause the other, or
iv. Independence or no causality.

Findings & Analysis

The two time series of contention, ASP & Net Sales (hereinafter referred to as NT_SALES) were first transformed to their logarithmic counterparts and then subjected to time series plot. The graph in *Figure 1* shows that LNASP (log transformation of ASP) & LNNT_SALES (log transformation of NT_SALES) are non-stationary but their first differences hover around a constant mean.

The series were then subjected to Correlogram analysis. *Figure 2* and *Figure 3* show the SACF & Partial Autocorrelation Function (PACF) of LNASP & LNNT_SALES respectively, computed up to 13 lags, which is approximately 1/3rd of the number of observations, following the rule of thumb. The results confirm that both the series are autoregressive of order one, i.e. AR (1) processes. Unit root tests viz. ADF test, PP test & KPSS tests were then conducted on the variables LNASP & LNNT_SALES, the results of which are summarized in *Table 1*. The ADF & PP tests indicate the stationarity of both the time series at first differences as it rejects the null hypothesis of non-stationarity at 1% level of significance confirming both as AR (1) processes, while the KPSS test rejects the null hypothesis of stationarity conducted at the levels of both the series at 5% level of significance.

Figure 1: Plot of natural logarithm of NT_Sales & ASP against time

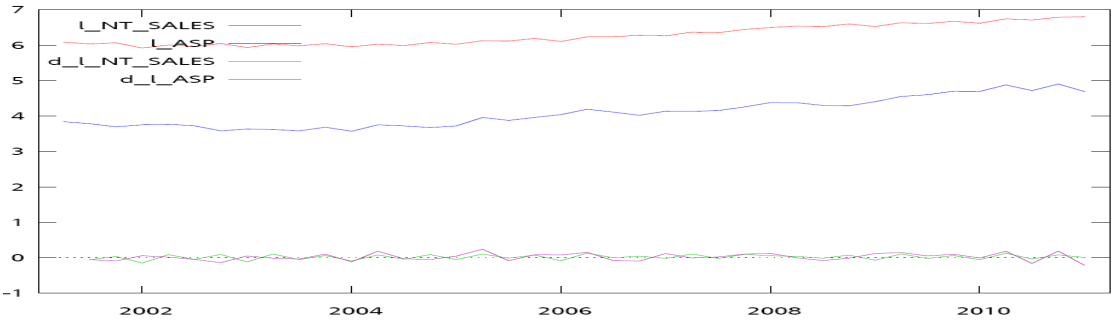

Figure 2: Correlogram analysis of LNASP

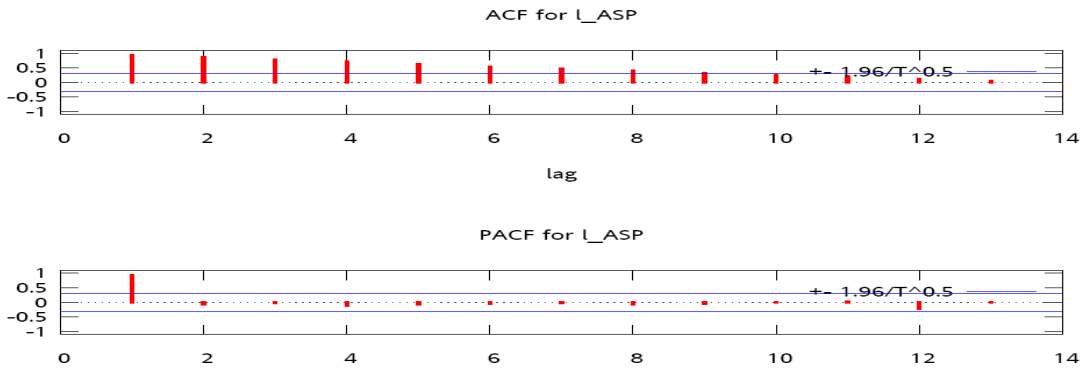

Figure 3: Correlogram analysis of LNNT_SALES

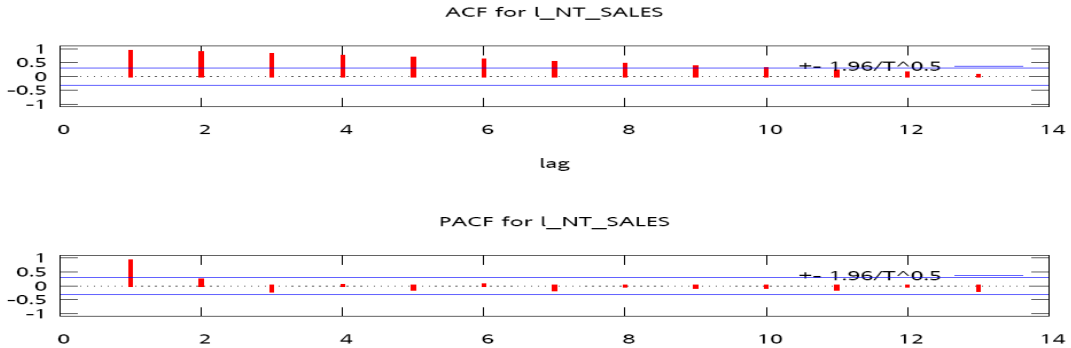

Table 1: Unit root tests on LNASP & LN_NTSALES (Constant without trend)

Series	ADF test statistic(max. lag 13)	PP test statistic	KPSS test statistic
LNASP (levels)	0.490525	0.056299	0.706432**
LNASP (first differences)	-8.228999***	-8.246761***	0.262680
LNNT_SALES (levels)	2.357054	0.748759	0.724066**
LNNT_SALES (first differences)	-16.356670***	-13.745678***	0.343437

*** & ** represent rejection of null hypothesis at 1% & 5% level of significance respectively

After confirming that the two time series are AR (1) processes we move on to establish a long-term relationship between by the Johansen cointegration test. A prerequisite of any cointegration test is to know the appropriate lag length, which has been determined here by the VAR lag selection procedure. An optimum lag order is where one or all of the criterions, viz. AIC, SBC, Hannan-Quinn (HQC) & p(LR) are minimized. *Table 2* summarizes the results of VAR lag selection which clearly indicate that optimum lag would be two based on the above criterions.

Table 2: VAR lag selection (maximum lag order 10)

Endogenous variables: LNASP & LNNT_SALES				
Lags	**(p)LR**	**AIC**	**SBC**	**HQC**
1		-4.405632	-4.125393	-4.315981
2	0.00000	-5.432765*	-4.965700*	-5.283347*
3	0.41215	-5.297928	-4.644036	-5.088743
4	0.32430	-5.186505	-4.345786	-4.917552
5	0.00947	-5.366540	-4.338995	-5.037819
6	0.30694	-5.260334	-4.045963	-4.871847
7	0.78422	-5.051526	-3.650328	-4.603271
8	0.41332	-4.916403	-3.328379	-4.408381
9	0.39505	-4.785795	-3.010945	-4.218005
10	0.02209	-4.900283	-2.938606	-4.272726

* indicates minimum values

Once the optimum lag order is calculated the Johansen cointegration test is performed on LNASP & LNNT_SALES as both are AR (1) series to find out the cointegration rank, if any. The test results in *Table 3* indicate, rejecting the null hypothesis of "no cointegrating vector", that there is one cointegrating vector at 5% level of significance as the critical values are less than those of the Trace statistic & the maximum Eigenvalue statistic respectively.

Table 3: Johansen cointegration test - No deterministic trend (restricted constant)

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.435679	29.781097	20.261839	0.001804
At most 1	0.190695	8.040020	9.164545	0.081411
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.435679	21.741077	15.892098	0.005348
At most 1	0.190695	8.040020	9.164545	0.081411

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
Max-Eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at 5% level
**MacKinnon-Haug-Michelis (1999) p-values

Since there is one statistically significant cointegrating vector, a long-term relation can be conjectured between LNASP & LNNT_SALES. As the rank of the cointegrating vector is one which is of the form (p-1), where p is the number of endogenous variables (in this case two), the VECM needs to be applied. Engle & Granger (1987) pointed out that if a set of variables are cointegrated, then there exists a valid error correction term. Since we are working with a bivariate model involving LNASP & LNNT_SALES, and these two are cointegrated, so there must invariably be a common trend shared between them. So while constructing the VEC model we hypothesize a constant and linear trend and run the model with two lags (as per lag order selection) of each variable. The results are summarized in *Table 4*.

Table 4: VEC model (with constant & linear trend)

Vector Error Correction Estimates **Included observations: 37 after adjustments** **Standard errors in ( ) & t-statistics in [ ]**		
Cointegrating Eq:	**CointEq1**	
LNNT_SALES(-1)	1	
LNASP(-1)	0.746342	
	0.336367	

Table 4: VEC model (with constant & linear trend) - continued

	[2.21884]	
0.008333333	-0.0643	
	0.013077	
	[-4.91693]	
C	-7.976051	
Error Correction:	D(LNNT_SALES)	D(LNASP)
	4(a)	**4(b)**
CointEq1	-0.087562	-0.270526
	0.034777	0.084588
	[-2.51777]***	[-3.19818]***
D(LNNT_SALES(-1))	-0.737623	-0.826443
	0.143628	0.349341
	[-5.13564]***	[-2.36572]**
D(LNNT_SALES(-2))	0.123399	-0.602172
	0.163713	0.398191
	[0.75375]	[-1.51227]*
D(LNASP(-1))	0.210404	-0.40037
	0.066788	0.162444
	[3.15034]***	[-2.46466]***
D(LNASP(-2))	0.156827	0.006771
	0.069415	0.168834
	[2.25927]**	[0.04010]
C	0.02274	0.066033
	0.008245	0.020054
	[2.75804]	[3.29275]
R-squared	0.805248	0.42949
Adj. R-squared	0.773836	0.337472
Sum sq. resids	0.039754	0.235181
S.E. equation	0.035811	0.0871
F-statistic	25.63535	4.667461
Log likelihood	73.96445	41.07818
Akaike AIC	-3.673754	-1.896118
Schwarz SC	-3.412524	-1.634888
Mean dependent	0.019798	0.027014
S.D. dependent	0.075301	0.107008

*, ** & *** denote statistical significance at 9%, 5% & 1% level respectively

The Error Correction Terms (ECTs) in equation 4(a) & 4(b) respectively are negative, less than unity & significant at 1% levels indicating that the ECT has an opposite adjustment effect to reduce the deviation caused by a residual shock. We observe that equation 4(a) is in equilibrium as the ECT is statistically equal to zero suggesting residual shocks have negligible effect on the system & that changes in LNNT_SALES adjust to changes in LNASP in the next time period, i.e. in the next quarter, as we are working with quarterly data. Thus it may be said that companies in personal care rely more on sales promotion than on advertising to boost sales, since sales promotion campaign has an immediate effect than advertising, the changes in NT_SALES are visible in the immediate next quarter as ASP are changed. We can also observe statistically significant causality from LNASP to LNNT_SALES in equation 4(a).

By the same virtue, in equation 4(b) the ECT is -0.2705 suggesting that there is a disequilibrium as a 27.05% residual shock in earlier period will be adjusted in the current period by changes in LNASP & completely absorbed after three more time periods, i.e. in total after almost a year. Since the causality from LNNT_SALES to LNAASP is in the negative direction, it suggests that changes in NT_SALES cause ASP to change in the negative direction, i.e. a fall in net sales in previous quarter will lead to an increase in ASP in current quarter. This justifies why companies go in with push

strategy in the form of aggressive sales promotions when sales decline to get immediate response in the forthcoming period.

Since the R square value & F statistic of equation 4(a) is much higher than that of 4(b), & the AIC, SBC, standard error are less in 4(a) than in 4(b), we consider the earlier as a better model. This implies that there is a positive impact of change in ASP on change in NT_SALES (as the coefficients are positive) but the change in NT_SALES due to change in ASP expenses would be less than proportionate (as coefficients are less than unity). The logic behind this is that increase in NT_SALES depends on many other factors like product quality, price, brand image, availability, and not only on an increase in ASP.

Finally to have confirmatory results, we run the pair wise granger causality test with two lags. The results of *Table 5* show that there is statistically significant bidirectional granger causality between LNASP & LNNT_SALES.

Table 5: Pairwise granger causality test

Pairwise Granger Causality Tests Lags: 2			
Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**
DLNNT_SALES does not Granger Cause DLNASP	37	2.91327	0.0688
DLNASP does not Granger Cause DLNNT_SALES		5.82261	0.007

The Granger causality test confirms the results of the VEC model about the presence of bidirectional causality or feedback as the null hypothesis of "no causality" is rejected from DLNNT_SALES to DLNASP at 10% level & from LNASP to LNNT_SALES at 1% level of significance.

Conclusion

One of the most challenging tasks that brand managers face in any organization is to take a call on the optimal promotional amount to be invested. Often managers treat this as an expense, curtail this expense when sales revenues fall, and hence fall in the trap of under promoting which leads to lesser and lesser revenue generation. Simultaneously, increasing the advertising and sales promotion budget does not necessarily mean generation of sales revenue of a similar magnitude. This is exactly what the above study regarding the relationship between advertising and sales promotion expenses and sales revenue, involving the personal care industry in India over ten years, has to offer.

On the one hand, the results clearly show that changes in sales revenue in earlier periods have an inverse relationship with the changes in advertising and sales promotion expenses of the current period, which means that any fall in sales is proactively followed by increasing promotional budgets so as to ensure better performance in the coming periods. The VECM suggests that the system will resort to opposite adjustments following residual shocks and the shocks will be completely absorbed after four quarters, suggesting that the speed of adjustment of advertising budget to a fall in sales will take almost one year. Thus we may say that during trying situations like a recession, even if it takes some time, organizations may do well to increase their promotions instead of decreasing, as is commonly done in India, which may help them to capture a considerable portion of the market share.

On the other hand, results also point out that earlier change in advertising and sales promotion expenses have a small but positive impact on generating current sales. The error correction model points out that residual shock have minimal effect on the system as the model is in equilibrium. Thus the model suggests that change in advertising and sales promotion would be absorbed by corresponding changes in net sales in the next quarter in the same direction, but since the impact will be less than proportionate, brand managers should not depend too much on the promotional thrust to boost sales but rather harp on other marketing mix variables like product designing, pricing, and

availability as they are equally responsible for generating sales. Also, as pointed out by Belch and Belch (2003), apart from the sales objective, promotional effort also creates awareness, interest, attitude change among consumers, and so organizations, particularly in the personal care industry in India should look towards attaining the bundle of benefits of a promotional campaign, rather than aiming for only sales generation in its objective setting.

Future Scope

This study was carried out for a period of ten years by taking quarterly data from the personal care industry in India. Quite a few aspects could not be delved into but may provide food for thought. The study may be extended in a way where the data may be so taken as to include recession periods and then it may be checked whether or not companies actually spend more during a recession. Also, the analysis may be made into a cross sectional one, with not one but quite a few industries into it and the relation between sales revenue and advertising and sales promotion expenditures being compared for the industries together.

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