IMPACT OF ADVERTISEMENT EXPENDITURE ON FIRM'S PERFORMANCE: A CASE OF FMCG INDUSTRY IN INDIA

Ph.D. THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF

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CERTIFICATE

Certified that the thesis entitled "IMPACT OF ADVERTISEMENT EXPENDITURE ON FIRM'S PERFORMANCE: A CASE OF FMCG INDUSTRY IN INDIA", which is being submitted by Ms Mandeep Kaur Mahendru, in fulfillment of the requirements for award of the Degree of Doctor of Philosophy in Management, to Thapar University, Patiala, is a record of the candidate's own work, carried out by her under my supervision and guidance. The matter embodied in this thesis has not been submitted in part or full to any other University or Institute for the award of any degree.

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This thesis is dedicated to the Almighty, my parents,
my husband and my siblings

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(Mandeep Kaur Mahendru)

ABSTRACT

This dissertation builds on the existing literature by studying the impact of advertisement expenditure on firm's performance in India. The research takes a sample of 100 FMCG companies in India and studies the impact of advertising and firm's performance for the period ranging from 2001-02 to 2010-11. The study uses sales, profits and firm value as measures of firm's performance. While the data for advertisement expenditure, sales and profits are obtained from the annual reports of the firms concerned as also from the CMIE Prowess database, the computations have been made to arrive at the firm value. Tobin's Q ratio has been used as a proxy for firm value. Various tools including Mean, Standard Deviation, Coefficient of Variation, Kurtosis, Skewness are applied for getting insights into the data. Econometric analysis including Augmented Dickey-Fuller unit-root test, Vector Auto Regression, Variance Decomposition Analysis, Impulse Response Function, Johansen's Cointegration and Vector Error Correction Model have been employed to find out the relationship between the variables under reference. The study points towards the positive impact of advertisement expenditure on sales, profitability and firm value. The study further observes that sales Revenue and profitability has a positive impact on firm value.

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

CHAPTER ONE

OVERVIEW OF THE STUDY

1.1 Introduction

Business environment throws dynamic challenges in the form of ever-growing competition. Product and brand extensions pose a challenge in terms of getting customer attention. Marketing metrics become a serious concern for marketers, who apply a variety of tools to overcome the competition. Advertisement is a vital tool used by marketers to sell their products or services. Advertisement reaches consumers through their TV sets, computers, radios, newspapers, magazines, mailboxes and more.

The usage of advertisement as a measure to build long-term competitive edge gains momentum in twentieth and twenty-first century only. Economists of the nineteenth century and before hardly paid any attention to advertisement. It so happens since the attention of the economists of nineteenth century was devoted largely towards the theory of perfect competition, which hardly sees any role for advertisement *(Bagwell, Ramey and Spulber, 1997)*. It is argued that under perfect competition, there is no merit in advertisement as the market will take as much as any seller wants to sell at the market price *(Pigou, 1924)*. Under perfect competition, advertisement expenses don't offer any returns to the producers. This is so since on one side the demand curve is fixed and cannot be altered directly by producers, while on the other hand, the producers can sell all that they can produce at the market price and none of them can produce more at that price *(Braithwaite, 1928)*. Near the beginning of the twentieth century, *Marshall (1890, 1919)* offers some insights into the economic analysis of advertisement. *Chamberlin (1933)* further builds on *Marshall*'s work and integrates selling costs into economic theory. Towards the end of the twentieth century, advertisement is seen as one of the strongest tools of marketing. The emergence of large-scale

advertisement is also attributable to income growth, advances in IT, literacy, and urbanization.

Advertisement is regarded as being persuasive, informative and complementary with the advertised product *(Bagwell, Ramey and Spulber, 1997)*. American Marketing Association defines advertisement as any paid form, non-personal presentation of ideas, products and services by an identified sponsor. Similarly, Advertisement is any paid form of non-personal communication about an organization, product, service, or idea by an identified sponsor *(Alexander, 1965)*. *Burnett (2008)* also views advertisement as a tool of non-personal communication aimed at disbursing marketing related information to a target audience, usually paid for by the advertiser and delivered through mass media in order to achieve the specific objectives of the sponsor Historically, the research work studying advertisement has focused largely on sales and profit response of marketing actions. The foremost function of advertisement has been seen in terms of increasing sales revenue. Thinkers find that advertisement helps in generating sales both in short-run and long-run *(Dekimpe and Hanssens, 1995; Lee et al, 1996; Leong et al, 1996; Leach and Reekie, 1996)*.

The aim of marketing in past has been formulated from customer perspective which in turn focused on marketing-sales relationship. Most of the earlier studies investigating the nature of advertisement have typically relied on relating advertisement to either the sales or profitability of the firm or industry. In recent times, however, the practitioners have started showing keen interest in the financial impact of marketing actions. It is being argued that advertisement is directed at increasing the sales of business, which shall further lead to an increase in profits. Increased profits may help increase the market price of the company's share, finally leading to increased firm value and shareholders' wealth. Marketers are now aiming to achieve better financial returns with the same amount of marketing actions. It is very difficult to justify the relationship between marketing expenditure and firm value with reducing budget, unless it is linked to the stock price.

A debate about usefulness of advertisement has been raging for a long time now. The effectiveness of advertisement has been an issue in marketing *(Borden 1952)*. On one side, advertisement expenditure is viewed as being wasteful altogether, the other school of thought maintains that advertisement has been consistent in its contribution towards increasing the sales revenue, profits and value of the firm. Market/sales response to advertisement has been a vastly debated topic in marketing research *(Vakratsas and Ambler, 1999)*. Researchers have not been able to arrive at a consensus with regard to the advertisement-sales relationship. Finding out different levels of return on advertisement, *Telser (1962)* suggests that managers should consider other variables, such as the economic condition and the level of competition in the market when estimating the effect of advertisement on sales.

1.2 Conceptual foundation

1.2.1 Advertisement

Advertisement is a mass communication tool. Advertisement is largely defined as any form of non-personal communication about an organisation, product, service or idea by an identified sponsor *(Alexander, 1965)*. The non-personal component indicates that advertisement involves transmission through the mass media, such as TV, radio, magazines, newspapers and billboards to a large group of individuals. In the present times of information technology revolution, advertisement is also used through electronic media such as internet and mobile. In fact, the traditional role of advertisement is changing in the market due to a number of factors, mostly due to greater empowerment of consumers and rapidly changing technology. The change in technology allows consumers to have more control and greater access to information, increasing the efficiency of information transfer from producers to consumers and further reducing costs. Consumers are no longer passive receivers of information through advertisement but they are now informationally empowered *(Rust and Oliver, 1994)*.

Advertisement is an expense that the seller has to initially bear with the hope the expenditure will generate sales and profits in the long-term. Advertisement is profitable not because it lowers the elasticity of demand for the advertised good, but because it increases the level of demand *(Nelson, 1974)*. It is possible that the level of competition increases advertisement outlays for the competitors in the industry yet there is no re-distribution and a zero sum game results which in effect are profit reducing. That is overall primary demand remains the same. It may also be the case that advertisement induces select demand resulting in a re-distribution within the industry and certain products profit at the expense of the others.

Advertisement has the ability to induce a response in consumers when differentiation is difficult to achieve using other marketing mix variables *(Rositer and Percy 1997, Belch and Belch 1998)*. The aim of advertisement is to create and foster this brand equity in order to maintain a position in the market and be easily recognisable and differentiated from the competition. Advertisement is the most effective way to build the long-term franchise of a brand and therefore very important to find the link between marketing communications especially advertisement to shareholder value *(Belch and Belch 1998)*.

Five Ms of advertisement play a major role in developing an advertisement program. As shown in figure 1.1, these include Mission, Message, Media, Money and Measurement.

Figure 1.1

The five Ms of advertisement

Mission	✓ What are the objectives? ✓ What is the key objective?
Money	✓ How much is it worth to reach my objectives? ✓ How much can be spent?
Message	✓ What message should be sent? ✓ Is the message clear and easily understood?
Media	✓ What media vehicles are available? ✓ What media vehicles should be used?
Measurement	✓ How should the results be measured? ✓ How should the results be evaluated and followed up?

1.2.1.1 ***Mission (setting the advertisement objectives):*** Advertisement Objectives can be classified as to whether their aim is:

a) To inform: This aim of Advertisement is generally true during the pioneering stage of a product category, where the objective is building a primary demand. This may include telling the market about a new product, suggesting new uses for a product, informing the market of a price change, informing how the product works, describing available services, correcting false impressions, reducing buyers' fears and/or building a company image.

b) To persuade: The advertisements made with a view to persuade, aim at building selective brand.

c) To remind: Such advertisements are highly effective in the maturity stage of the product. The aim is to keep the consumer thinking about the product.

1.2.1.2 ***Money:*** This M deals with deciding on the Advertisement Budget. The advertisement budget can be allocated based on departments or product groups, calendar, media used, specific geographic market areas. There are five specific factors to be considered when setting the Advertisement budget.

a) *Stage in PLC:* New products typically receive large advertisement budgets to build awareness and to gain consumer trial. Established brands are usually supported with lower advertisement budgets as a ratio to sales.

b) *Market Share and Consumer base:* high-market-share brands usually require less advertisement expenditure as a percentage of sales to maintain their share. To build share by increasing market size requires larger advertisement expenditures. Additionally, on a cost-per-impressions basis, it is less expensive to reach consumers of a widely used brand them to reach consumers of low-share brands.

c) *Competition and clutter:* In a market with a large number of competitors and high advertisement spending, a brand must advertise more heavily to be heard above the noise in the market. Even simple clutter from advertisements not directly competitive to the brand creates the need for heavier advertisement.

d) *Advertisement frequency:* the number of repetitions needed to put across the brands message to consumers has an important impact on the advertisement budget.

e) *Product substitutability:* brands in the commodity class (example cigarettes, beer, soft drinks) require heavy advertisement to establish a different image. Advertisement is also important when a brand can offer unique physical benefits or features.

1.2.1.3 Message generation: Message generation can be done in the following ways:

a) *Inductive:* By talking to consumers, dealers, experts and competitors. Consumers are the major source of good ideas. Their feeling about the product, its strengths, and weaknesses gives enough information that could aid the Message generation process.

b) *Deductive:* John C. Meloney proposed a framework for generating Advertisement Messages. A buyer expects four types of rewards from a product, i.e. rational, sensory, social ego satisfaction. Buyers might visualize these rewards from Results-of-use Experience, Product-in-use Experience or Incidental-to-use Experience.

1.2.1.4 Media: The next 'M' to be considered while making an Advertisement Program is the Media through which to communicate the Message generated during the previous stage. The decisions involved in this stage are –

a) Deciding on geographical media;

b) Deciding on media timing;

c) Selecting specific media vehicles;

d) Choosing among major media types; and

e) Deciding reach, frequency and impact

1.2.1.5 ***Measurement:*** Evaluating the effectiveness of the Advertisement Program is very important as it helps prevent further wastage of money and helps make corrections that are important for further advertisement campaigns. Researching the effectiveness of the advertisement is the most used method of evaluating the effectiveness of the Advertisement Program. Research can be in the form of communication-effect research and sales-effect research.

In a nutshell, advertisement is an important form of communication and its basic responsibility is to deliver the message to the target audience. It is a very important tool of promotion. It is expected to perform the following functions:

(a) Contribute to increase demand leading to increased sales and increased profits;

(b) Help other promotion mix elements;

(c) Create satisfied customers and ensure them to make publicity by words of month;

(d) Provide competitive edge over the other competitors in business;

(e) Help in building brand image;

(f) Encourage new product development, innovation and reduces risks;

(g) Increase the value of firm; and

(h) Overall, contribute in development of the business.

1.2.2 Firm performance

In order to view the impact of advertisement expenditure on firm's performance, this study uses three indicators of firm's performance, i.e., sales, profits and firm value.

1.2.2.1 Sales: Sales revenue is the total amount of money that the firm gets from the sale of all its goods and services in a given period of time. Sales in business terms are the actual sales in money values, received by a firm after necessary collections are made from different sales channels of the original total production put on the market *(Mc Cathy et al, 1994)*. Sales stimulate production in a company and consequently profits, which are affected by various factors some of which are controllable like quality and others are uncontrollable like competition and general price changes.

Sales performance also refers to the total amount of firm's output sold to the market. This is affected by many factors including customer relationship, marketing management of the firm and sales-force skills and motivation and even the pricing of the goods and services *(Amanda D.H, 2002)*.

1.2.2.2 Profit: Profit is the financial benefit that is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain the activity. Any profit that is gained goes to the business's owners, who may or may not decide to spend it on the business. Profit is the money a business makes after accounting for all the expenses.

Profit is also understood as the surplus remaining after total costs are deducted from total revenue, and the basis on which tax is computed and dividend is paid. On the other hand, *Helfert (1991)* describes profitability as the effectiveness with which the firm has employed both the total assets and the net assets as recorded in the balance sheet. The effectiveness is judged by relating net profit to the assets utilized in generating the profit. It is the best known measure of success in an enterprise.

Major types of profit used in accounting terminology include –

a) Gross Profit equals sales revenue minus cost of goods sold (COGS), thus removing only the part of expenses that can be traced directly to

the production or purchase of the goods. Gross profit still includes general (overhead) expenses, interest expense, taxes and extraordinary items.

b) Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) equals sales revenue minus cost of goods sold and all expenses except for interest, amortization, depreciation and taxes. It measures the cash earnings that can be used to pay interest and repay the principal. Since the interest is paid before income tax is calculated, the debtholder can ignore taxes.

c) Earnings Before Interest and Taxes (EBIT)/ Operating Profit equals sales revenue minus cost of goods sold and all expenses except for interest and taxes. This is the surplus generated by operations. It is also known as Operating Profit Before Interest and Taxes (OPBIT) or simply Profit Before Interest and Taxes (PBIT).

d) Earnings Before Taxes (EBT)/ NET Profit Before Tax equals sales revenue minus cost of goods sold and all expenses except for taxes. It is also known as pre-tax book income (PTBI), net operating income before taxes or simply pre-tax Income.

e) Earnings After Tax (EAT)/ Profit After Tax equals sales revenue after deducting all expenses, including taxes (unless some distinction about the treatment of extraordinary expenses is made). In the US, the term Net Income is commonly used. Income before extraordinary expenses represents the same but before adjusting for extraordinary items.

f) Retained Earnings are computed by deducting the payable dividends from Earnings After Tax.

1.2.2.3 ***Firm Value:*** Determining the value of a company is a process very important and controversial at the same time. Knowing the value of a firm is indispensable not only in case of sale or merger but it is also useful to

identify sources of value creation. There is no standard method used for determining the value of the company, but it differs depending on the purpose, being a process that involves a high degree of subjectivism.

In conventional opinion, firm value is obtained by adding the market value of equity to the market value of debt. However, this firm value measure includes all assets owned by the firm including its cash holdings. Netting cash out from firm value yields enterprise value, which can be considered to be the market value of just the operating assets of the firm.

Firm Value = Market value of Equity + Market value of Debt

Enterprise Value = Market Value of Equity + Market value of Debt – Cash Holdings

Ratio 'Q' developed by James Tobin of Yale University, Nobel laureate in economics, has been extensively used as a proxy for firm value. *Tobin (1969)* hypothesizes that the combined market value of all the companies on the stock market should be about equal to their replacement costs. The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets:

$$\text{Q Ratio} = \frac{\text{Total Market Value of Firm}}{\text{Total Asset Value}}$$

A number of improvised models of 'Q' have been developed by the researchers after Tobin giving the 'Q' ratio. These include L-R algorithm and many other improvised methods. The present study uses the simplified version of approximated 'Q' as suggested by *Chung and Pruitt (1994),* which seems simpler and more objective as compared to the original 'Q' as given by Tobin –

$$\text{Approximated Tobin's q} = \frac{\textit{Market Value of Equity} + \textit{Book Value of Debt}}{\textit{Book Value of Total Assets}}$$

1.2.3 FMCG Industry

India is a South Asian country that is the seventh largest in area and has the second largest population in the world. The land covers an area of 3,287,240 square km (India geography) and the population stands at 1,210,569,573 people (2011 census). India has great plains, long coastlines and majestic mountains. Thus, the land has abundant resources. India shares its borders with China, Bangladesh, Pakistan, Nepal, Sri Lanka and Myanmar. Large, dynamic and steadily expanding, the Indian economy is characterized by a huge workforce operating in many new sectors of opportunity. The Indian economy is one of the fastest growing economies and is the 12th largest in terms of the market exchange rate at $1,242 billion (India GDP). In terms of purchasing power parity, Indian economy ranks the fourth largest in the world. However, poverty still remains a major concern besides disparity in income.

Fast Moving Consumer Goods (FMCG) goods are popularly named as consumer packaged goods. Items in this category include all consumables (other than groceries/pulses) people buy at regular intervals. The most common in the list are toilet soaps, detergents, shampoos, toothpaste, shaving products, shoe polish, packaged foodstuff, and household accessories and extends to certain electronic goods. These items are meant for daily or frequent consumption and have a high return. The Indian FMCG sector is the fourth largest sector in the economy with a total market size. It has a strong MNC presence and is characterised by a well-established distribution network, intense competition between the organised and unorganised segments and low operational cost. Availability of key raw materials, cheaper labour costs and presence across the entire value chain gives India a competitive advantage. Indian FMCG market is set to treble from US$ 11.6 billion in 2003 to US$ 33.4 billion in 2015 *(CII, 2014)*. Penetration level as well as per capita consumption in most product categories like jams, toothpaste, skin

care, hair wash etc in India is low indicating the untapped market potential. Burgeoning Indian population, particularly the middle class and the rural segments, presents an opportunity to makers of branded products to convert consumers to branded products. Growth is also likely to come from consumer 'upgrading' in the matured product categories. With 200 million people expected to shift to processed and packaged food by 2010, India needs around US$ 28 billion of investment in the food-processing industry. Various other aspects of the FMCG industry in India are discussed below –

a) ***Evolution of FMCG sector:*** Fast moving Consumer Goods (FMCG) also known as inelastic products are the goods purchased by the consumers for their own use and purchased repeatedly. The purchase is on daily or weekly basis in small quantity. The price of such products per unit is low but the consumption is very high due to the requirements of every one. This has led to the emergence of a separate sector called FMCG sector in India. India has always been a country with a big chunk of world population, be it the 1950's or the twenty first century. In that sense, the FMCG market potential has always been very big. However, from the 1950's to the 80's, investments in the FMCG industries were very limited due to low purchasing power and the government's favouring of the small-scale sector. The consumer markets in India are constantly evolving. The first phase of consumer market evolution in the 1980s and the 1990s was characterized by some major structural changes: changes in income distribution, increased product availability (in terms of both quality and quantity), increased competition, increased media penetration and improved advertisement (impacting lifestyle). These raised the levels of consumer awareness and propensity to consume, etc. The late 1990s witnessed a surge in consumer finance products owing to steady financial sector reforms in the economy and innovative marketing. The consumer markets in India have entered the second phase of evolution with the turn of the century. The Fast Moving Consumer Goods (FMCG) sector is the fourth largest sector in the economy with a total market of Rs 160,100

crores estimated to grow to US$ 100 billion by 2025. This industry essentially comprises Consumer Non-Durable (CND) products and caters to the everyday need of the population. Slowdown of the economy does not hamper the growth of FMCG sector in India. It is one of the outperformer sector in the country.

Table 1.1

Performance of BSE sectoral indices

Indices	Close	% Change			
		1 year	2 year	3 year	5 year
BSE Auto	11426.21	40.31	5.65	15.38	14.68
BSE Bankex	14344.99	56.72	3.54	12.65	3.86
BSE FMCG	5916.22	46.61	26.68	28.42	19.80
BSE Healthcare	8132.35	38.53	9.88	17.44	12.73
BSE Mental	11070.63	19.13	-20.66	-13.98	-11.60
BSE Oil & Gas	8518.58	13.14	-10.35	-6.64	-8.65
BSE Realty	2110.80	53.44	-14.02	-18.18	-30.92
BSE TECk	3427.90	1.41	-7.95	1.51	-2.85
CNX Consumption	2350.15	37.47	10.71	14.11	4.72
CNX Infra	2585.00	21.65	-13.52	-10.46	-15.71
CNX Media	1768.05	58.67	2.89	3.33	-9.22

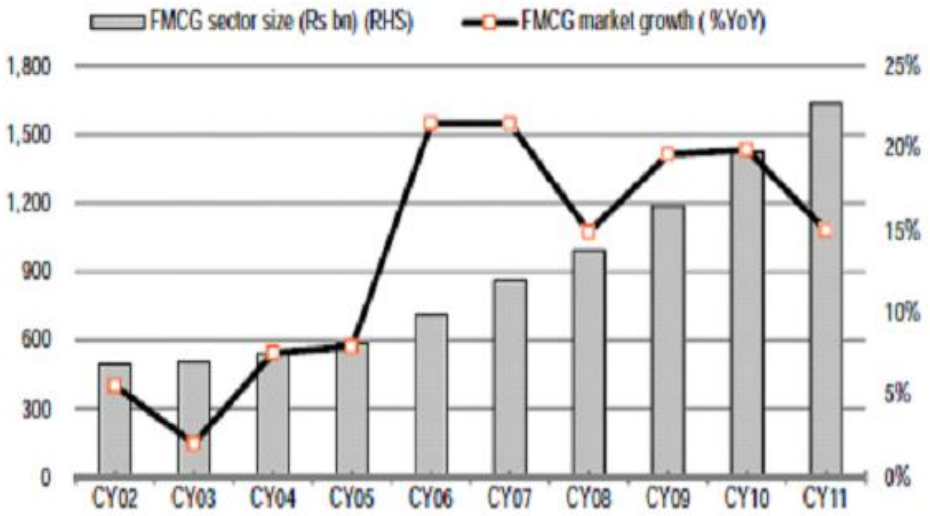
(Source: Sector Indices are taken as on December 2012, the multiples for BSE FMCG Index and BSE Index are based on TTM as on 18th April 2013)

The FMCG sector in India is growing due to increasing awareness and penetration of mass communication into rural areas. This leads to rural tastes converging onto urban lines, which in turn is resulting in a huge surge in the demand for many personal use products in rural areas. The most attractive growth drivers in FMCG sector are packaged food category, detergents, hair care products, cosmetics, toiletries and edible oil. To capitalize on this current growth many FMCG companies (Indian and MNCs) are trying to increase their presence in various sub-segments of the FMCG space. These companies are continuously trying to navigate to new growth areas to avoid stagnation in one sub-segment and also

fighting tough competition at the same time. In spite of ups and downs FMCG sector remains most attractive opportunity for foreign players who are eyeing presence in the emerging market. Amid the recent gloomy scenario of the Indian economy, most of the FMCG companies have bucked the trend by posting stellar top line growth driven by sustained volumes. Major companies like Marico, Emami, Dabur and Hindustan Uniliver Limited (HUL) have recorded 17%, 15%, 12% and 10% volume growth respectively during the fourth quarter of FY12-13.

b) Industry Overview: The Indian FMCG sector is the fourth largest sector in the economy with a total market size of US$ 33.4 billion1 (including F&B, personal care, household care, tobacco, paints and spirits etc).The market is estimated to grow to US$ 100 billion by 2025, according to market research firm Nielsen. In the last decade the sector has grown at an average of 11% per year; in the last five years, annual growth accelerated to 17%.The graph below shows the growth of FMCG sector in INR billions.

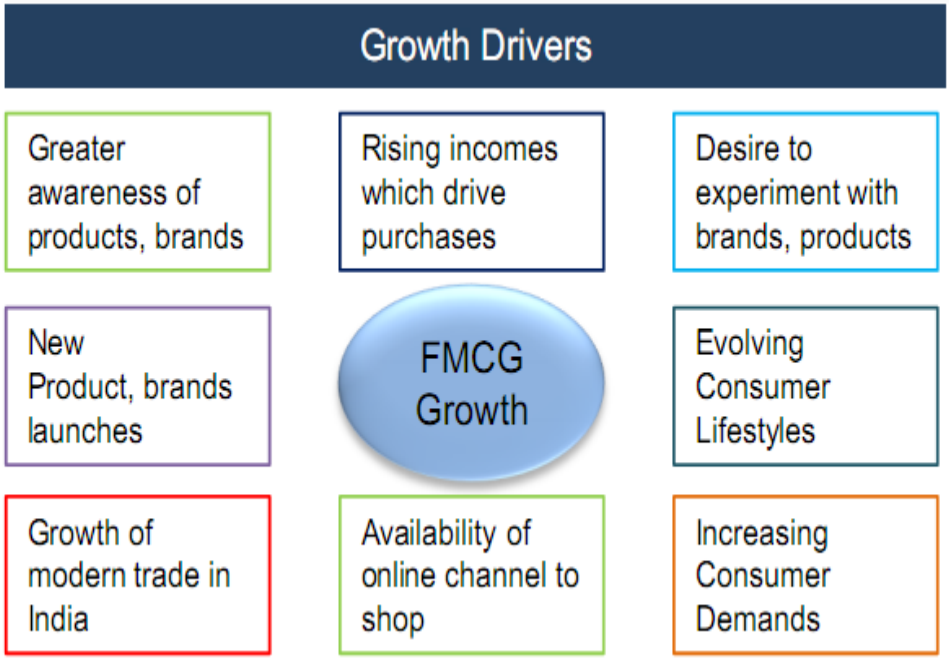
Figure 1.2



(Source: UBS, Indian Consumer Sector, March 2013, Converted at USD INR – 50)

Figure 1.3 exhibits the growth drivers of the FMCG industry.

Figure 1.3



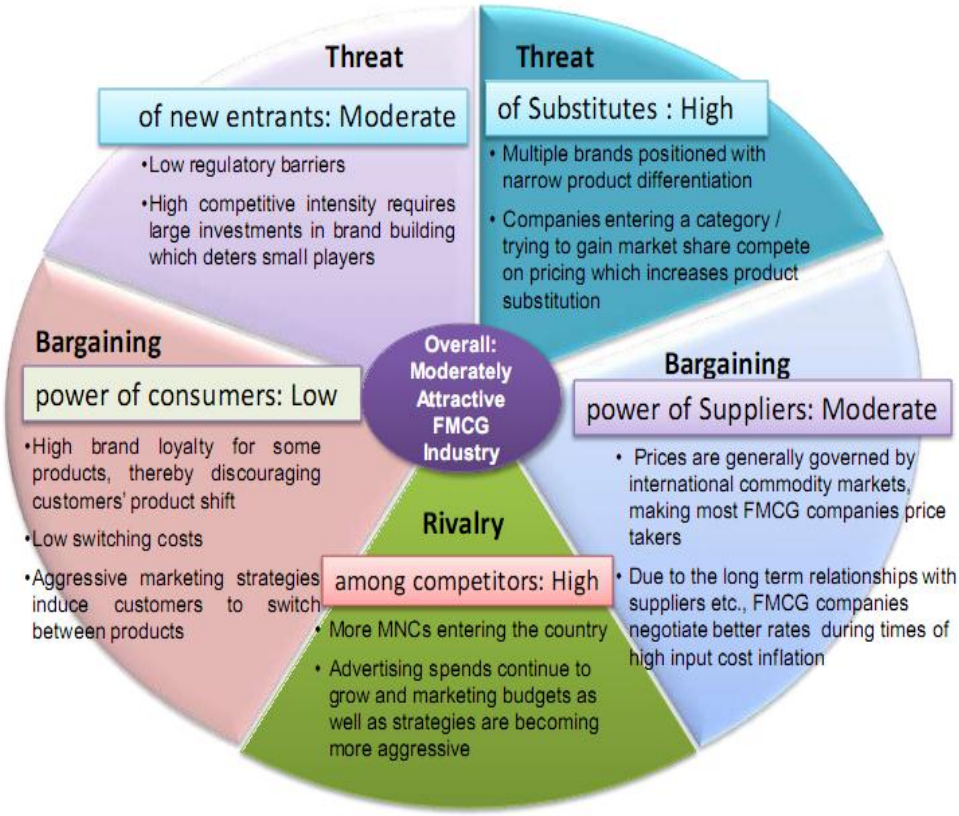
(Source: Dinodia Capital Advisers Report-May2013)

The industry is characterized by well established distribution network, low penetration levels, low operating cost as well as low per capita consumption, high purchasing frequency as well as sales in both the organized and unorganized sectors with increased sale in both rural and urban population of the country. With changing life style and increased consumer demand the industry is expected to grow to cross $80 billion by 2026 in towns with population of up to 10 lakh .The applicability of Porter's Five Forces model on FMCG industry is shown in figure 1.4.

FMCG sector is proving to be a boon for the economy in terms of growth as well as generation of employment in developed as well as developing regions. The sector in contributing in reducing the carbon footprints by generating the required energy from renewable sources and earn CRE credits for the same.

Figure 1.4

Five-forces model and FMCG industry



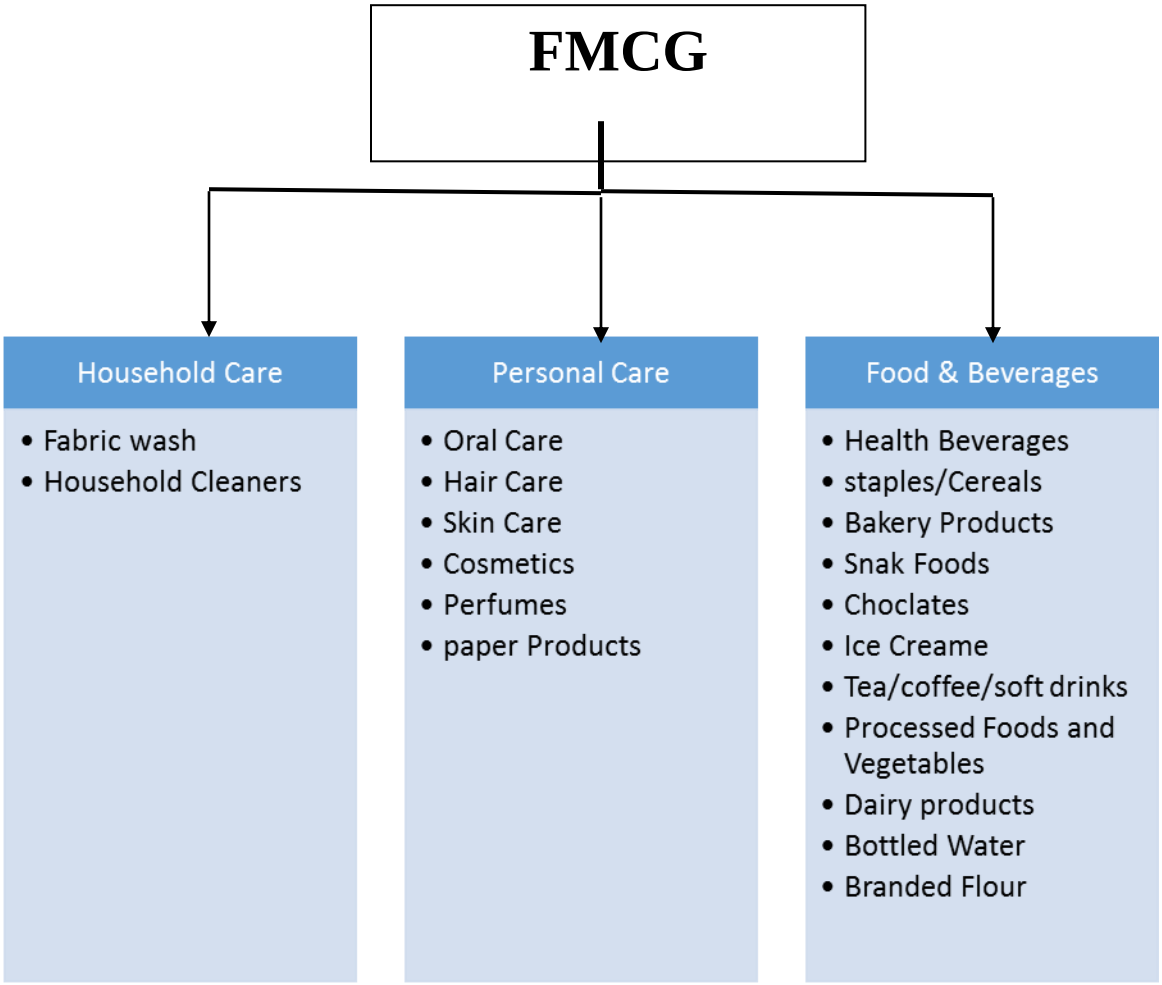
(Source: DINODIA Capital Advisers Report September, 2012)

c) ***Segments of FMCG industry:*** The FMCG industry may further be classified into three segments as presented in Figure 1.5. The detergents segment dominates the household care segment and has been growing at an annual growth rate of 10-11% in the past five years. The Indian personal care segment is set to change significantly in the coming years as consumption habits, fuelled by rising disposable income and changing lifestyles, align themselves with global trends. E.g. bath soaps are likely to be replaced by shower gel or liquid soap variants and there will be growing use of hair conditioners and electronic tooth brushes. The Food and Beverages segment comprises of the food processing industry, health beverage industry, bread and biscuits, chocolates & confectionery,

Mineral Water and ice creams. India is one of the fastest growing branded restaurants markets in the world, where the organized eating-out market is currently estimated at US$ 2 billion and growing at a CAGR of 25%.

Figure 1.5

Segments in FMCG industry



1.3 Problem Statement

Advertisement is a form of non-personal communication directed at increasing the sales of business, which shall further lead to an increase in profits. Increased profits may help increase the market price of the company's share, finally leading

to increased firm value and shareholders' wealth. It is important for marketer to understand whether advertisement helps achieve these objectives or not. Such understanding may help a firm in taking a call on its advertisement expenditure.

However, there is no consensus in empirical studies on whether or not advertisement expenditure is able to achieve these goals. *Leong et al (1996), Leach and Reekie (1996), Metwally (1997), Graham, R.C. Jr and Frankenberger (2000), Joshi and Hanssens (2002), Joshi and Hanssens (2010), Elliot (2001), Pagan et al (2001), Kamber (2002), Yiannaka et al (2002), Ouyang et al (2002), Kim and Morris (2003), Zhou et al (2003), Belch and Belch (2004), Pauwels et al (2004), Esteve and Requena (2006), Shah and Akbar (2008), Agyapong et al (2011), Banerjee et al (2012)* provide the evidence of the impact of advertisement expenditure on sales revenue. However, *Beckwith (1972), Hamilton (1972), Aaker et al (1982), Bass and Pilon (1980), Hanssens (1980), Jagpal (1981), Leone (1983), Connolly and Hirschey (1984), Baltagi and Levin (1986), Bublitz and Ettredge (1989), Aaker (1991), Tschoel and Yu (1991), Erikshon and Jacobson (1992), Chauvin and Hirschey (1993), Kwoka (1993), Chauvin and Hirschey (1994), Aaker and Jacobson (1994), Blattberg, Richard and Edward (1995), Doyle (2000), Andras and Srinivasan (2003), Sharma and Sharma (2009)* find only a minor or no relationship between advertisement and sales.

Mixed results with regard to the contribution of advertisement expenditure in firm's performance as shown in the above empirical studies focusing on numerous countries and numerous industries lead managers to no clear-cut suggestion as to how much should they spend on advertisement. Hence, there is a clear-cut need to conduct country-specific and industry-specific studies about the contribution of advertisement expenditure in firm's performance. Besides, the years of economic liberalization coupled with the information technology revolution and changing lifestyle are redefining the entire business dynamics. *One,* advertisements are going global at a much faster pace leading to a global response to advertisement. *Two,* the forms of advertisement are changing to include electronic advertisement and mobile advertisement to the overall

advertisement portfolio of firms. This leads to change in the costing patterns of advertisement. *Three,* urbanization has changed the entire lifestyle of people across the world. Shortage of time at the disposal of individuals and families is forcing firms to rethink their advertisement media as well as advertisement content. As a result of all these changing patterns taken together, the impact of advertisement expenditure on firm's performance is bound to see a resultant change. Therefore, there is a strong need to conduct research studies about effectiveness of advertisement expenditure taking data till the recent years.

Extensive literature studies relationship among advertisement, sales, profits and firm value, but majority of these studies focus on developed countries. In recent years, the developing economies such as India and China have outperformed developed economies such as USA and UK in terms of GDP growth rates, making them favourite destinations for the firms and marketers. However, studies about effectiveness of advertisement expenditure have still not shifted their focus towards the developing economies, which is highly called for.

The present study builds on the existing literature by studying the inter-linkage between advertisement expenses, sales, profits and firm value in a developing and emerging economy, i.e. India. Further, the study focuses on the manufacturing sector. Among the manufacturing sector, the study targets the FMCG industry, which happens to be the most diverse industry in terms of product portfolio. Moreover, Growing at a Compound Annual Growth Rate (CAGR) of 12%, FMCG industry in India is expected to become a Rs 4,000 billion industry in 2020 (*Booz & Company, 2011*). The industry is characterized by a well-established distribution network, low penetration levels, low operating cost, lower per capita consumption and intense competition between the organized and unorganized segments. Considering these factors, the research studies the relationship between advertisement expenses, sales, profits and firm value in Indian FMCG industry.

1.4 Objectives of the study

The study attempts to carry out the under-mentioned objectives–

- To study the impact of Advertisement on the market value of the firm.
- To observe whether increase in advertisement expenditure leads to increase in sales revenue and profitability.
- To study the impact of sales revenue and profitability on the market value of the firm
- To suggest the implications for marketers from the firm value effect of advertisement.

1.5 Hypotheses Development

The impact of advertisement, sales and firm value are tested through spillover and signaling effects *(Joshi and Hanssens, 2010)*. Advertisement seeks to differentiate a firm's products from those of its competitors, thereby creating brand equity for its products *(Aaker, 1982)*. Besides, advertisement can also act as a signal of financial well-being or competitive viability of a firm. *(Joshi and Hanssens, 2010)*. The present study attempts to test the following hypotheses for studying the impact as such.

Hypothesis 1: Advertisement expenditure has a positive impact on firm value.

Hypothesis 2: Advertisement expenditure has a positive impact on sales revenue and profitability of the firm.

Hypothesis 3: Sales Revenue and Profitability has a positive impact on market value of firm.

1.6 Scope of the study

This study is conducted mainly to understand the effectiveness of advertisement expenditure in terms of its ability to influence a firm's performance. The study uses sales, profitability and firm value as measures of the firm's performance.

The advertisement spending is higher in manufacturing companies' than the service companies. Moreover, the sales in currency and the sales in units are both visible in case of manufacturing companies, whereas, in service companies only the sales in currency are observable, sales in units are not. Hence, picking a manufacturing industry for the purpose of such study makes logic. FMCG industry, being one of the most diverse manufacturing industries, forms the scope of the study. One hundred Bombay Stock Exchange (BSE)-listed companies from the FMCG industry selected randomly are used as the sample for the study. The sample period for the study is 10 years ranging from 2001–2002 to 2010–2011.

The findings of the study will be of particular interest to the marketers and managers in arriving at the decision regarding the advertisement budget of the firm. The study aims to establish the advertisement effectiveness in terms of its contribution to the sales, profits and firm value. In case the findings of the study show the impact of advertisement expenditure on sales and profits, the marketers will be tempted to stretch their advertisement budgets in order to build a competitive edge over the competitors. Furthermore, in present era, the shareholders are observed to be closely tracking every development in the firm. Shareholders are keeping a close eye on the advertisement spending by the firm, the amount spent on public relations by the firm and other similar issues. The findings of the study with regard to the contribution of advertisement expenditure in firm value will be of keen interest to the shareholders. As of now, the shareholders are not in a position to make out if an advertisement campaign is beneficial for them or not. The study may offer some strategic inputs to the shareholders in this regard.

The study leaves a scope for future research in the area. While on one hand, future researchers may cover other industry(s) for their studies, on the other hand, research efforts may also be made in future to include more than one countries. Inter-industry or inter-country studies may also be undertaken.

1.7 Organization of the study:

The thesis is organized as follows –

The current chapter, i.e., Chapter One entitled 'Overview of the study' introduces the study while also defining the research problem and building the problem statement. Moreover, the chapter defines the concepts involved in the study. The objectives and scope of the study also form part of this chapter.

Chapter two of the thesis is titled 'Review of Literature'. This chapter reviews the literature regarding various objectives of the research and brings forth the gaps in literature for the purpose of building a case to undertake the present research. The chapter also reviews the tools put to use by previous researchers on the topic.

The third chapter of thesis – 'Research Methodology' – presents the methodology employed with regard to sampling, data collection, data analysis and report presentation. The chapter discusses in detail the tools applied for data analysis.

'Empirical Analysis' is the fourth chapter of this thesis. The chapter presents the findings of the study with respect to the objectives as outlined in Chapter one of the study. In addition to the quantitative and diagrammatic presentation of the findings, the chapter also analyses the findings through text tool.

Chapter five entitled 'Summary and Conclusion' concludes the study. The chapter presents a broad-based summary of the thesis with issues ranging from problem statement through the findings of the study. The chapter also outlines the managerial implications from the study, in particular.

CHAPTER TWO

REVIEW OF LITERATURE

Economic literature starts paying attention to the advertisement only in the twentieth century. Prior to that, there is hardly any evidence of economic thinkers highlighting the value of advertisement for a firm. The economists of nineteenth century were mainly focusing towards the theory of perfect competition. Perfect competition hardly sees any role for advertisement *(Blagwell, 2005)*. Under perfect competition, the market takes as much as any seller wants to sell at the market price, thereby making advertisement a negligible tool *(Pigou, 1924)*. It is near the beginning of the twentieth century that *Marshall (1890, 1919)* offers some insights into the economic analysis of advertisement.

Marshall (1919) suggests that advertisement can play a constructive role by conveying information to consumers about existence, location, functions and qualities of the products. *Fogg-Meade (1901), Pigou (1924), Shaw (1912), Sherman (1900) and Shryer (1912)* also contribute significantly to the economic analysis of advertisement. Economic analysis of advertisement, however, stops short of integrating advertisement into economic theory, a work that is completed by *Chamberlin (1933)* by embracing this integration. *Chamberlin (1933)* argues additionally that a firm can use advertisement and other promotional activities to further differentiate its product from those of its rivals. Advertisement-induced product differentiation is beneficial to a firm as a means of expanding its market; in graphical terms, by advertisement, a firm generates an outward shift in its demand curve. *Chamberlin (1933)* establishes that advertisement affects demand by conveying information (to consumers) with regard to the existence of sellers, the price and qualities of products in the marketplace, thereby altering consumers' "wants" or tastes.

The interest in advertisement grows significantly towards the end of the twentieth century with *Borden (1942), Wood (1958), Chandler (1990), Harris and Seldon*

(1962), Simon (1970), Schmalensee (1972), Comanor and Wilson (1979), Pope (1983), Ekelund and Saurman (1988), Tirole (1988), Schmalensee (1989), Stiglitz (1989) exploring the need for advertisement in economic activities.Further, There has been controversy regarding the accounting treatment of advertisement outlays.A number of studies in the existing literature support the notion of advertisement having an asset value (e.g. see *Chauvin and Hirschey,1993; Hirschey 1985; Hirschey and Spencer1992; Lustgarten and Thomadakis 1987; Morck et al. 1988; Morck and Yeung 1991*, among others). The conclusions are, however, not unequivocal. There are other researchers (e.g. see *Aaker and Jacobson 1994; Bublitz and Ettredge 1989; Erickson and Jacobson 1992; Sougiannis 1994*, among others) who argue for supporting the notion that advertisement does not generate benefits beyond the period in which this expenditure is incurred. The difficulties in accounting for advertisement expenditure are mainly because of the complexity of identifying the costs associated with the particular activities, projects or achievements, and the determination of the magnitude of future benefits and the length of its useful life. Since management can anticipate current profit levels with more certainty as compared with future profitability, they would normally prefer to write off all expenditure in the current period. *Han and Manry (2004)*, for instance, indicate that investors believe the economic benefits of advertisement expenditure expire in the current period, similar to other expenses. As a consequence, management often seems more inclined to record all the expenditure on advertisement in the current period when profit levels are known with more certainty, than risking the carrying of these costs over into future periods as capitalized costs. The firm might not have sufficient revenues in future periods to absorb amortization of these costs. Following these kind of arguments, advertisement expenditure is generally written off in the current period. *Peles (1970)* remarks that the dominant accounting practice is to charge advertisement expenditure to current expenses, producing an implicit rate of amortization of 100%. This practice is based on tax benefit considerations, conservatism, and a lack of other acceptable and non-arbitrary systems of amortization. But there are still others (e.g. *Hirschey 1982;*

Hirschey and Weygandt 1985) who believe that advertisement expenditure should be capitalized and amortized over their useful lives. In their view, since investment in advertisement would benefit current as well as future periods, the cost should be recorded as an intangible asset and amortized against current and future revenues. *Abdel-Khalik (1975)* points out that choices of treating advertisement as expense or capitalizing it over its useful life are significant 'because of their potential impact upon the measurement of income, earnings per share, and possibly the balance sheet'. If advertisement expenditure is treated as an expense, it will, on the one hand, reduce earnings but, on the other hand, could provide tax benefits to the firm. Similarly, according to the matching principle, expenses of a period should be matched with revenues of a period. If all advertisement expenditure is expensed in one period while its benefits accrue in the future periods, the matching principle of accounting will be jeopardized. Further, the immediate expensing of advertisement has an impact on various measurements such as the return on equity, return on assets and other similar indicators of the financial health of the firm. Supporting the long-lived view of advertisement, *Hirschey (1982)* and *Hirschey and Weygandt (1985)* conclude that advertisement is long-lived and should be capitalized and amortized over time rather than expensed when incurred. *White and Miles (1996)* also argue that advertisement is indeed a strategic investment in the organization's stock or intangible assets, future cash flows, and market value. As an investment in an invisible asset, advertisement should be subjected to the same capital budgeting analysis as any other expenditure that produces multi-period cash flows. Failure to do so is inconsistent with the financial objective of shareholder wealth optimization. *Barth and Kasznik (1999)* use advertisement and R&D as proxies for intangible assets and argue that 'we select research and development and advertisement expenses because firms making investments in these activities likely have intangible assets related to, e.g. developed technology and brand names, many of which are not recognized in firms' financial statements'. Similarly, *Graham and Frankenberger (2000)* conclude that real dollar

advertisement changes are associated with future earnings and with market values.

Since then, empirical literature has extensively studied the concept and relevance of advertisement expenditure. Researchers have debated the usefulness of advertisement expenditure with regard to its capability to impact firm performance. Further, much research has been conducted on the variables of firm performance. Sales, profits and firm value have largely been studied as the indicators of firm performance. Some studies attempt to establish the relationship between advertisement expenditure and one or more variables of firm performance.

The literature reviewed in this section is mainly divided into four sub-sections – (i) conceptual foundation; (ii) relationship between advertisement expense, sales and profits; (iii) relationship between advertisement expense, sales, profits and firm value; (iv) theoretical framework.

2.1 Conceptual foundation

Advertisement is a paid form of non-personal communication by an identified sponsor *(Alexander, 1965:9)*, which aims to push the audience towards a purchase decision. It involves transmission through the mass media in the form of billboards, newspapers, magazines, television, radio and internet, etc. It represents an important means by which organizations communicate with their customers, current as well as potential *(Clow and Baack, 2004)*. Advertisement expenditure is also viewed as a tool to prevent the competing businesses from entering the industry (*Schmalensee, 1976; Beath et al., 1987; Beath and Ulph, 1990*). It helps the business achieve competitive advantage by selling its products and overcoming the rivals. Since advertisements have empirically been found to have an influence on the purchase behaviour of consumers (*Kundu, Kulkarni and Murthy, 2010)*, the corporate world is investing a massive amount of money on advertisement. Companies spend money on the advertisements and publicity in order to make sure that the masses are aware of its products, their features and

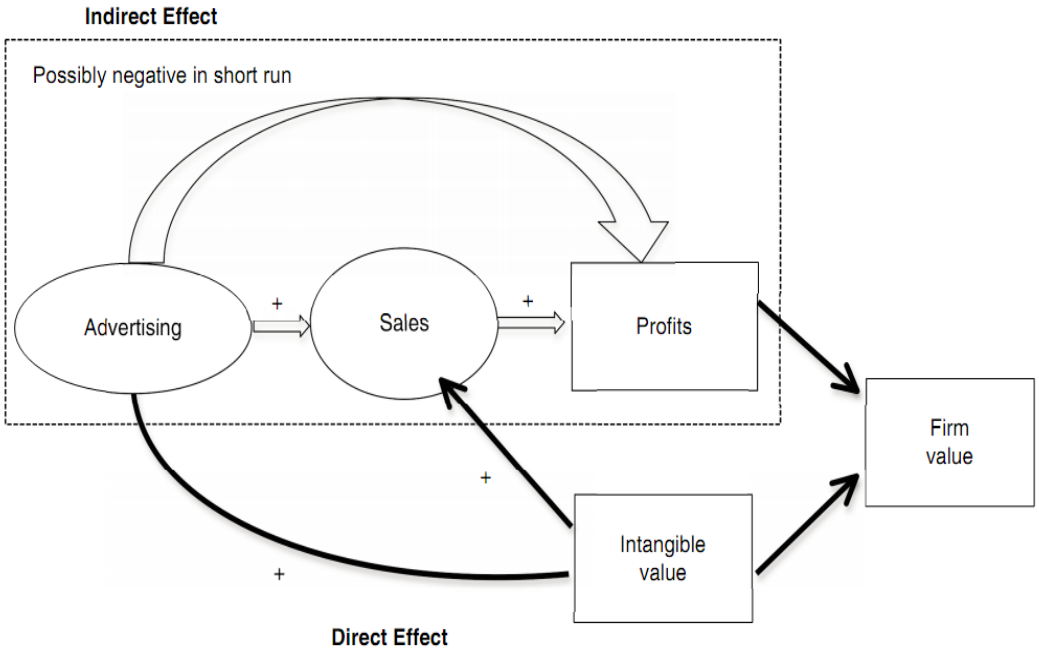
advantages over the competitors. Basic purpose of advertisement is to increase the sales of the advertised products/companies. Basically, it is meant to sell a product, service or an idea Similar as well as diverse opinions are found about the concept of advertisement. Researchers largely agree that advertisement is a non-personal communication. *Bovee and Arens (1992)* opine that advertisement is the non-personal communication of information usually paid for and usually persuasive in nature about products, services or ideas by identified sponsors through the various media. More recently, *Jones, Gregory and Munro (2009)* regard advertisement as a sort of machine-made mass production method of selling, which supplements the voice and personality of the individual salesman much as in manufacturing the machine supplements the hands of the craftsmen. Typically, advertisement was considered merely as a print-media activity. This is evident when *Starch (1961)* considers advertisement as the presentation of a proposition usually in print to the people in such a way that they may be induced to act upon it. However, advertisement has evolved immensely over the recent years. Advertisement includes those activities by which visual or oral messages are addressed to the public for purpose of informing them either to any merchandise, to act, to inclined favourably towards ideas, institution or persons featured. Now advertisement is viewed more as the art of disseminating marketing information through various media of communication at the expense of the company for the purpose of increasing or maintaining effective demand *(Thompson et al, 1993)*. In a broad sense, advertisement consists of all the activities in presenting to a group, a non-personal, visual, openly sponsored message regarding a product, service or idea *(Pires, Stanton and Cheek, 2003)*. Business expects a return on all the investments being made, including advertisement expenditure. Therefore, it is all the more important for the marketers to examine its impact on their performance.

There have been studies about the impact of advertisement on firm's performance. The studies have ranged from the indirect effect studies to the dynamic studies like the Strategic Planning Institute's PIMS (Profit Impact of Market Strategy) study that finds the companies having increased advertisement during recession outperforming the average of all businesses by almost 250% and that the cost of

spending had no significant effect on ROI. The study of firm value is a study of tangible and intangible value of the firm *(Simon and Sullivan, 1993)*. The distinction between the two types of effects is visible in Figure 2.1 below –

Figure 2.1

Direct and indirect impact of advertisement expenditure on Firm Value



[Source: Joshi and Hanssens (2010)]

While tangible assets include sales and profits *(Blattberg, Briesch and Fox 1995; Lodish et al 1995; Nijs et al 2001, Pauwels et al 2002)*, intangible assets may be classified as: (i) market specific factors such as regulations that lead to imperfect competition, (ii) firm-specific factors, such as R&D expenditures and patents, and (iii) brand equity *(Simon and Sullivan 1993)*.

Sales and profits form part of the tangible firm value, from the marketing angle. *Lodish et al (1995)* study the impact of marketing instruments on the tangible value for the short-run while *Nijs et al (2001)* and *Simester et al (2009)* study this impact for the long-run. Tangibly, value of the firm comprises of the present value of cash flows during the value growth period and the long-term, residual

value of the product/business at the end of the value growth period *(Day and Fahey 1988; Rappaport 1986)*. Market-based assets of the firm can enhance shareholder value by improving market performance through helping a product or service penetrate markets faster, getting price premiums, making brand extensions easier, lowering costs for sales and service, and/or obtaining higher customer loyalty and retention (*Han, Kim and Srivastava, 1998*). Better market performance based on superior market-based assets can accelerate and enhance cash flows, reduce volatility and vulnerability of cash flows, and increase the residual value of cash flows that, in turn, generate higher shareholder value (*Han, Kim and Srivastava, 1998*).

On the other hand, intangible value of the firm is reflected in its intangible assets, such as brand equity (*Chan et al, 2001*). The intangible assets are not required to be reported in the accounting books in most of the countries, which adds complications to the firm valuation exercise. *Simon and Sullivan (1993)* classifies intangible assets as (a) market-specific factors, such as regulations leading to imperfect competition; (b) firm-specific factors, such as Research & Development expenditure and patents; and (c) brand-equity.

2.2 Advertisement, Sales and Profits

A number of studies concerning advertisement expenditure presume an impact of advertisement on sales to start with. This presumption doesn't seem much realistic though, since the relationship between the two variables is not just one-sided. Besides the impact of advertisement on sales, there is also a possibility of sales on advertisement expenditure *(Abe, 1995; Hsu et al, 2002; Lee et al, 1996; Tellis and Fornell, 1998)*. The causal relationship between the two variables appears to run in both directions when proper econometric tools are used to detect it *(Lee et al, 1996).*

The initial evidence of advertisement on sales is provided by *Hollander (1949)*. Afterwards, *Jastram (1955), Vidale and Wolfe (1957), Nerlove and Waugh (1961), Palda (1964, 1965), Alexander (1965), Tull (1965), Verdon et al (1968),*

Abdel-Khalik (1975), Lambin (1969, 1970, 1976), Clarke (1976), Peles (1970, 1971), Simon (1969), Leone and Schultz (1980), Hanssens (1980), Assmus, Farley and Lehmann (1984), Jose, Nichols and Stevens (1986), Sethuraman and Tellis (1991), Baghestani (1991), Simon and Sullivan (1993), Zanias (1994), Dekimpe and Hanssens (1995), Natarajan et al (2010) report the positive effect of advertisement on sales. The number of other studies (e.g. *Dean 1951; Jastram 1955; Vidale and Wolfe 1957; Nerlove and Waugh 1961*, among others) that report the existence of a lagged effect of advertisement. Perhaps one of the more detailed studies providing more comprehensive evidence on the issue of the carry-over effect of advertisement came from *Palda (1964, 1965)*. *Palda (1965)*, while pointing towards a relative lack of empirical evidence regarding the cumulative effects of advertisement expenditure, provides a unique analysis of the effects of advertisement on sales. The study tests a number of models using multivariate regression. The results in *Palda (1965)* indicate that advertisement is an intangible asset that is subject to amortization and that, on average, 95% of the advertisement expenditure was amortized during a period of almost seven years. Similarly, *Lambin (1969, 1970, 1976)*, *Peles (1970,1971)*, *Simon (1969)* and *Tull (1965)* provide evidence of an influence of advertisement on sales.

Abdel-Khalik (1975) examines the effects of advertisement on sales revenues by employing OLS regression with a sample of firms from the food, automobile, tobacco, soap and cleaners, drugs and cosmetics industries in United States from 1955 to 1973. The paper finds long-lived effects of advertisement on sales in the food and the drugs and cosmetic industries and short-lived effects for the rest of the groups. The study further argues for different treatments of the promotional cost of firms in different industries. *Baghestani (1991)* takes annual advertisement and sales data from the Lydia Pinkham Company from 1907 to 1960 and found that both are cointegrated and share a long-term relationship. *Zanias (1994)* also analyzes the Lydia Pinkham data set and finds bivariate granger causality between advertisement and sales. The two series were also found to have a valid long-term relationship. *Dekimpe and Hanssens (1995)* find out that advertisement has a strong effect on sales for a chain of home improvement stores.

Clarke (1976) reviews the econometric literature to determine the duration of cumulative advertisement effects on sales. Clarke classifies around 69 econometric studies into various groups on the basis of the data collection interval as used by these studies. Based on his survey of the studies and analysis, *Clarke (1976)* suggests that 'the long implied duration intervals obtained from the annual models are due to data interval bias'. *Clarke (1976)* concludes that if one considers the monthly, bimonthly, and quarterly results to be most likely to be free of data interval bias, the duration of cumulative advertisement effect on sales is between 3 and 15 months: thus this effect is a short-term (about a year or less) phenomenon. Leading brands (e.g. Cadburys, Pepsi, Persil, Ford, BT, among others) have managed, however, to maintain their reputation and brand leadership for so many years. Both current and past advertisement seems to have played a key role in building such strong images for these leading brands. The findings in *Dekimpe and Hanssen (1995)*, for instance, differ from *Clarke (1976)* that 90% of the measurable effects of advertisement on sales are consumed within a few months. The findings in *Dekimpe and Hanssen (1995)* suggest that Clarke's conjecture may be valid in stable environments but should not be generalized to evolving markets. *Dekimpe and Hanssen (1995)* believe that 'if the distinct nature of evolving environments is not taken into account, one may seriously underestimate the long-run effectiveness of advertisement'. Clarke's survey of econometric studies of the cumulative effects of advertisement ignited a lively debate, and a number of authors have put forward their own arguments in commenting on, and/or disputing the conclusions of the survey. *Bloch (1974)*, citing a number of empirical studies, remarks that, despite the findings in these studies which demonstrate that advertisement has a long-lasting effect on sales yet, normal accounting practice is to treat advertisement expenditures as a current expense in the calculation of reported profit and net worth ... so that the net worth of the firm is understated the reported profit of the firm is misstated. *Lee et al. (1996)* question earlier studies for failing to detect the simultaneous causal relationship between advertisement and sales. *Lee et al. (1996)* believe that the causal relationship between advertisement and sales appears to run in both

directions when proper econometric tools are used to detect it. Using advertisement data derived from various sources, *Duffy (1996)* finds no evidence to back up the view that aggregate cigarette advertisement serves to expand the total market for cigarettes. Similarly, *Duffy (1999)* suggests that food advertisement has no effect upon the share of household budgets devoted to food consumption. Using quarterly data derived from various sources, *Elliott (2001)* examines whether there is a long-term, stable, equilibrium relationship between advertisement and sales for food and drinks industries. Cointegration between advertisement and sales for the food industry, but not for the soft drinks industry data, has been identified. Similarly, *Yiannaka et al. (2002)* examine the effectiveness of advertisement for an unbalanced panel data set of 34 meat processing firms in Greece over 1983–1997. *Yiannaka et al. (2002)* indicate total advertisement by the firms of the sector as a very important determinant of their sales. *Ouyang et al. (2002)* show the existence of a long-term impact of advertisement on the sales of consumer durables (colour television sets, refrigerators, washing machines, microwave ovens and video CD/VCD players) in China. Similarly, *Zhou et al. (2003)* investigate the impact of short-term advertisement on long term consumer durables and non-durables in China using cross-sectional time-series television advertisement and sales data. Results in *Zhou et al.(2003)* show that advertisement had a long-term effect on sales of consumer durables (colour television sets, refrigerators, washing machines and air conditioners), but did not have long term effects on sales of consumer non-durables (shampoo and skincare cream).

In some more studies, *Leong et al (1996), Leach and Reekie (1996), Metwally (1997), Graham, R.C. Jr and Frankenberger (2000), Joshi and Hanssens (2002), Joshi and Hanssens (2010), Elliot (2001), Pagan et al (2001), Kamber (2002), Yiannaka et al (2002), Ouyang et al (2002), Kim and Morris (2003), Zhou et al (2003), Belch and Belch (2004), Pauwels et al (2004), Esteve and Requena (2006), Shah and Akbar (2008), Agyapong et al (2011), Banerjee et al (2012)* provide the evidence of the impact of advertisement expenditure on sales revenue. *Leong et al (1996)* reveal a strong positive relationship exist between

advertisement expenditure and sales by applying cointegration technique. Application of Granger causality test by *Leach and Reekie (1996)*, show that advertisement expenses cause sales but sales do not simultaneously cause advertisement. *Metwally (1997)* explains the variations in the growth rates of advertisement expenditure of consumer goods and services in Australia during the period 1975-1995 by developing and testing a number of hypotheses. His application of regression results indicate that the growth in advertisement expenditure is strongly correlated with the growth in sales and that movement in market shares exerts a significant effect on the growth in advertisement expenditure. *Elliot (2001)* finds that advertisement has a significant positive effect of on the food industry sales and he concludes this relationship to be stable. *Pagan et al (2001)* uses bivariate Vector Auto Regression model to study the effectiveness of advertisement on sales and reveals that one time increasing in advertisement expenditure leads to increase in the sales of orange with a one month lag. *Kamber (2002)* finds a measurable relationship between advertisement expenditures and sales, even after controlling factors like company size, past sales growth, etc. Examining the effectiveness of advertisement for an unbalanced panel data set of 34 meat-processing firms in Greece over 1983–1997, *Yiannaka et al. (2002)* indicate total advertisement by the firms of the sector as a very important determinant of their sales. *Ouyang et al. (2002)* observe a long-term impact of advertisement on the sales of consumer durables in China. *Zhou et al. (2003)* show that advertisement had a long-term effect on sales of consumer durables, but did not have long-term effects on sales of consumer non-durables. *Pauwels et al. (2004)* study stock market performance in United States using the data period of 1996 to 2001. The study claims that advertisement expenditure affects sales revenue in the short term and the long term. *Esteve and Requena (2006)* establish a long run relationship between advertisement and sales across different markets over the period 1971 – 2001 in the UK car industry and found out two structural breaks during the recession periods. *Agyapong et al (2011)* find strong relationships between marketing communication and sales performance of

Vodafone in Ghana. *Banerjee et al (2012)* find evidence of cointegration between marketing communication and sales in the personal care industry in India.

Some of the recent studies have found only a minor or no relationship between advertisement and sales. These include *Beckwith (1972), Hamilton (1972), Aaker et al (1982), Bass and Pilon (1980), Hanssens (1980), Jagpal (1981), Leone (1983), Connolly and Hirschey (1984), Baltagi and Levin (1986), Bublitz and Ettredge (1989), Aaker (1991), Tschoel and Yu (1991), Erikshon and Jacobson (1992), Chauvin and Hirschey (1993), Kwoka (1993), Chauvin and Hirschey (1994), Aaker and Jacobson (1994), Blattberg, Richard and Edward (1995), Doyle (2000), Andras and Srinivasan (2003), Sharma and Sharma (2009).*

Studying the sales of a commercial bank, *Jagpal (1981)* observes that radio advertisement was ineffective in generating sales (number of savings and checking accounts). *Baltagi and Levin (1986)* investigate the relationship between advertisement expenditure and sales by using a dynamic demand tier cigarettes which uses a pooled data of 46 states from year 1963 to 1980. Running an empirical analysis using panel data analysis and Hausman-Taylor Estimators, the paper claims that negative relationship between advertisement expenditure and sales and indicated insignificant income elasticity and significant low price elasticity. Their findings were consistent with *Hamilton (1972)*, that there is a negative relationship between advertisement expenditure and sales which was worked out in the (US cigarette industry). *Kwoka (1993)* studies the advertisement and sales for the United States automobile industry. In his study which uses a data set of 22 years from I960 to 1982 by using Hausman's test and OLS model to determine the impact of advertisement, *Kwoka (1993)* claims that there is a positive relationship between the 13 advertisement and sales for the U. S. automobile industry. He also shows that advertisement in the automobile industry increases a car's model sales, but it is just short-lived.

Sharma and Sharma (2009) reveal that the effect of advertisement on sales is more for manufacturing companies and less for non-manufacturing companies.

This finding is consistent with the findings of *Andras and Srinivasan (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.

Empirical researches also find evidence to suggest that the advertisement-sales relationships could be influenced by other marketing activities of the firm and/or competitors as well as exogenous variables such as population and income *(Telser 1962; Palda 1964; Quandt 1964)*. Studying various cigarette brands, *Telser (1962)* finds that there are different levels of return on advertisement depending. The study suggests that managers need to consider other variables, such as the economic condition and the level of competition in the market when estimating the effect of advertisement on sales *(Telser 1962, 1964)*. *Quandt (1964)* also argues that economic variables such as disposable income and geographic-demographic variables such as education should be considered exogenous variables that can affect the relationship between advertisement and sales. *Bass and Clarke (1972), Rao and Miller (1975)* look at other marketing mix variables, such as sales promotion measures, and other market performance variables, such as market share. In the later periods, more researchers involve in studying the market response analysis approach *(Assmus et al. 1984; Leone and Shultz 1990; Lodish et al. 1995; Sethuraman and Tellis 1991; McDonald 1992; Parker and Gatignon 1996)*. Market response analysis approach generally relates advertisement as well as price and promotional measures directly to market performance measures such as sales, market share, and brand choice (*Vakratsas and Ambler, 1999*). On one hand, studies deal with market- level data such as brand advertisement expenditures and brand sales or market share

(Bass and Clarke 1972; Rao 1975; Blattberg and Jeuland 1981; Hanssens et al. 1990); while on the other hand, individual - level data such as the number of exposures for an individual and individual brand choice is examined *(Tellis 1988; Pedrick and Zufryden 1991; Deighton et al.*

1994). Market response to advertisement differs across different periods of research. For instance, *Winer (1979)* suggests that the carryover effects of advertisement expenditure on sales declines over time, while the current advertisement effects increase during the same period. *Leone (1995)* suggests that advertisement's effects on sales would disperse after six to nine months instead of earlier estimates *(Assmus, Farley, and Lehmann 1984*) of three to fifteen months. *Dekimpe and Hanssens (1995)* argue that the effects of advertisement do not dissipate within a year.

The persuasive view of advertisement maintains that advertisement creates brand loyalty and works to deter entry. *Bain (1956)* and *Comanor and Wilson (1967, 1974)* argue, this conclusion may be indirectly evaluated by examining the association between advertisement intensity and profitability.

Comanor and Wilson (1967, 1974) observe a strong and positive relationship exists between advertisement intensity and profitability for U. S. manufacturing industries that produce consumer goods. Using the US data, other studies including *Backman (1967), Boyer (1974), Connolly and Hirschey (1984), Connor and Peterson (1992), Domowitz et al (1986a, 1986b), Esposito and Esposito (1971), Gomes (1986), Hirschey (1978, 1985), Jones et al (1977), Kwoka and Ravenscraft (1986), Mann (1966), Martin (1979a,b), Miller (1969), Porter (1974, 1976a, 1976b, 1979), Ravenscraft (1983), Vernon and Nourse (1973)* and *Weiss (1974)*. Similarly, *Cowling et al (1975), Geroski (1982) and Nickell and Metcalf (1978)* use U. K. data and report evidence of a positive relationship between advertisement and profitability. Similar findings are reported by *Jones et al (1973, 1977)* and *Orr (1974b)* for Canadian data and by *Caves and Uekusa (1976)* and *Nakao (1979)* for Japanese data. More recently, *Siong (2010)* finds a positive relation between advertisement and firm profitability. *Hamid, Nadar and Meena (2012)* provide evidence to show the existence of long term relationship between advertisement expenses and profitability. *Notta and Oustapassidis (2001)* find television advertisement effects on profitability to be positive and significant only in the consumer industries where television advertisement intensity is high.

There are also some dissenting studies. For example, *Salinger (1984)* finds that advertisement interacted with concentration fails to exert a significant and positive influence on profitability measure. *Eckard (1991)* also reports that cigarette-industry profit margins increased after the 1970 U.S. ban on TV advertisement. *Landes and Rosenfield (1994)* offer evidence that the relationship may reflect the omission of firm-specific variables such as product quality. *Greuner, Kamerschen and Klein (2000)* conclude that firms cannot increase their profits above normal levels by increasing their advertisement expenditures. Advertisement serves primarily to transmit information, not to create entry barriers.

Graham and Frankenberger (2000) provide general evidence of advertisement asset values, arguing that advertisement expenditure contributes to earnings for more than one period. Similarly, *Notta and Oustapassidis (2001)* examine the effects of each of the TV, radio, newspaper and magazine advertisement on firm profitability in the period 1993–1996. Using firm-level panel data for 350 firms in the Greek food manufacturing sector, *Notta and Oustapassidis (2001)* indicate that only TV advertisement increases profitability. The majority of earlier advertisement profitability studies (e.g. *Comanor and Wilson 1974; Weiss 1969,* among others) have focused on adjusting profit rates only for accounting treatment of advertisement expenditure. They have apparently ignored (for one reason or another) other factors such as investments in R&D, and training and development costs that are expensed despite the fact that they yield benefits in the future. Specifically, there is enough empirical evidence (see e.g. *Core et al.2003; Green et al. 1996; Hirschey 1982; Chauvin and Hirschey 1994,* among others) emerging regarding R&D that the market appears to treat such expenditure as if it were investments in long-term intangible assets. In addition to advertisement, these other factors may potentially cause a bias in the profit rates. *Grabowski and Mueller (1978),* for instance, support similar arguments by commenting that 'profit rates should be adjusted for the capital investment character of R&D (along with advertisement), before one investigates the relative importance of R&D and the other structural determinants of profitability'.

The role and contribution of advertisement has been different in different industries. *Telser (1964)* observes that in producer goods industries, advertisement may play a less central role in the selling costs of the firm. *Weiss et al (1983)* provide some empirical support for a diminished role of advertisement for manufacturers of producer goods. Therefore, the relationship between advertisement intensity and profitability is expected to be weaker in producer-goods industries. Providing an evidence consistent with this expectation, *Domowitz et al (1986a, 1986b)* find that the positive relationship between advertisement intensity and profitability is weakened in manufacturing industries that supply producer goods. *Esposito and Esposito (1971), Jones et al (1977)* and *Miller (1969)* also provide a similar evidence about relation between advertisement and profitability.

Backman (1967), Telser (1968, 1969a) and Weiss (1969) note that the positive advertisement-profitability relationship is spurious, being derived from a measurement approach that biases the profit rate upward in the presence of heavy advertisement. *Comanor and Wilson (1974)* also confirm this conclusion. On the other hand, *Bloch (1974)* and *Ayanian (1975)* argue that advertisement does not have a statistically significant effect on the true rate of profit.

Advertisement-profit relationship also leads one to attempt exploring if advertisement and profitability and jointly determined. *Schmalensee (1972, 1976a, 1989)* emphasizes that advertisement intensity and profitability may be positively associated, because they are endogenous and positively related to omitted variables that induce large mark ups. In particular, Firms of superior efficiency may advertise more and earn more. Therefore, it may be possible to disentangle the causal possibilities somewhat by looking at how the relationship between advertisement and profitability varies within an industry between large and small firms. *Gomes (1986), Kwoka and Ravenscraft (1986)* and *Porter (1979)* provide inter-industry evidence that the advertisement-profitability association indeed is significantly greater for large firms.

The conclusions from advertisement and profitability studies are, again, somewhat mixed. While some studies report an advertisement and profitability relationship (see e.g. *Graham and Frankenberger 2000; Sougiannis 1994*), others are unable to detect a significant relationship between advertisement and profitability (see e.g. *Reekie and Bhoyrub, 1981*). The most common point of disagreement is whether a higher or lower advertisement depreciation rate is assumed in estimating advertisement capital (see e.g. *Ayanian 1983; Bloch 1980; Comanor and Wilson 1974, 1979*). It is also interesting to note that studies using industry data (e.g. *Comanor and Wilson 1974; Weiss 1969*) find a significant and positive relation between advertisement and profitability, while studies using firm-level data (e.g. *Ayanian, 1975, 1983; Bloch 1974*) report no such relationship between advertisement and profitability. This may point to the potential problem of aggregation of data in studies using industry data being one of the reasons for the different results. Similarly, there are still other problems in arriving at accurate profit rates. For instance, firms adopt various depreciation policies according to their own arbitrary measure of estimated useful lives of their tangible assets. Inappropriate depreciation policies might also cause accounting profit rates to be distorted. Finally, there are issues related to the direction of causation between advertisement and profitability and the consequent implications for public policy. A common criticism of the single equation advertisement intensity model is the potential endogeneity of profitability and other variables (e.g. concentration). Endogeneity exists when a model includes an endogenous explanatory variable. If profitability or concentration, for instance, is endogenously determined with advertisement intensity, ordinary least squares estimates of the model parameters will be biased (see *Willis and Rogers, 1998*). *Chenhall and Moers (2007)* explain that a variable is endogenous if it is determined within the context of the model, while an exogenous variable is a variable that affects the values of endogenous variables, but whose values are determined outside the model. They argue that the potential for endogeneity exists in virtually all studies involving accounting, finance and economic variables. Attempts have been made to control for such endogeneity using simultaneous estimation (see e.g. *Comanor and Wilson 1974;*

Rosenbaum 1993). *Schmalensee (1989)* argues that valid instruments for endogenous variables in cross-sectional industry studies are virtually non-existent. *Notta and Oustapassidis (2001),* however, indicate that consistent estimates can be obtained when instrumental variables are used. According to *Notta and Oustapassidis (2001),* a formal Hausman–Wu test can indicate whether or not an instrumental variable technique needs to be used to obtain satisfactory estimates of parameters from a particular sample. Similarly, use of better theory and logic in formulating the research questions, use of good quality data and panel data techniques can often help to alleviate problems associated with endogeneity.

2.3 Advertisement, Sales, Profits and Firm Value

Marketing literature particularly studies the indirect effect of advertisement expenditure on firm value. These studies attempt to understand the impact of advertisement on firm value by understanding the impact of advertisement on sales, of sales on profits and of profits on firm value. The studies with a direct impact of advertisement expenditure on intangible value of the firm are rather lacking. Valuation models are increasingly being used to investigate various kinds of relationships involving a number of relevant variables of interest. *Green et al. (1996)*, for instance, examine the relationship between firms' market value and R&D expenditure. However, the use of valuation models to investigate the value relevance of advertisement expenditure is preferred largely due to the ability of the firm value to reflect all factors that have impact on the future profitability of the firm.

Though *Drucker (1973)* cites innovation and marketing as the two factors crucial to long-term corporate health, yet no important research attempts to link the advertisement expenditure with firm value are visible till *Hirschey (1982)* makes an important contribution to the literature by studying advertisement expenditure as an intangible asset that impacts largely on the firm value brand-related intangible assets. Linkages have been found between advertisement and brand-related intangible assets including perceived quality (e.g. *Moorthy and Zhao,*

2000) and brand attitude (*Berger and Mitchell, 1989*). As a consequence, we may expect advertisement to have an indirect impact on firm value through the increase in sales and profits (e.g. *Graham and Frankenberger 2000*), as well as a direct effect by virtue of building brand-related intangible assets. As against the earlier studies that attempt to relate advertisement with either sales and/or profitability, *Hirschey (1982)* applies a market valuation model, and regresses deflated market values on contemporaneous deflated values of a number of relevant variables including profit, advertisement, R&D, concentration, growth and risk. The study takes a sample of 390 firms from 12 major product groups for the year 1977. *Hirschey (1982)* observes significant firm value effect of advertisement and R & D expenditure. The study suggests that both advertisement and R&D be treated as intangible capital assets while commenting that 'we find support for their treatment as intangible capital since each has a highly significant positive influence on market value ...' A compelling virtue of an approach based on the market value of the firm is that such an approach minimizes the effect of accounting bias *(Hirschey, 1985)*. Good amount of research has followed-up *Hirschey (1982)* by studying the impact of advertisement on firm value. These include *Connolly and Hirschey (1984); Hirschey and Weygandt (1985); Jose, Nichols and Stevens (1986); Lustgarten and Thomdakis (1987); Morck and Yeung (1991); Hirschey and Spencer (1992); Chauvin and Hirschey (1993); Aaker and Jacobson (1994); Lev and Sougiannis (1995); Mathur and Mathur (1995); Srivastava et al. (1998); Graham and Frankenberger (2000)*; *Houston, Johnson and Simon (2002); Joshi and Hanssens (2002); Ailawadi et al. (2003); Chauvin and Hirschey (2003)*; *Kim and Morris (2003); Jeong (2004); Grullon, Kanatas, and Weston (2004); Yew, Keh and Ong (2005); Singh et al. (2005); Qureshi (2007); Shah and Akbar (2008); Kimbrough and McAlister (2008); Srinivasan and Hanssens (2009); Joshi and Hanssens (2010); Kundu, Kulkarni and Murthy (2010).*

Some of the studies including *Connolly and Hirschey (1984); Hirschey and Weygandt (1985); Jose, Nichols and Stevens (1986); Lustgarten and Thomdakis (1987); Morck and Yeung (1991); Hirschey and Spencer (1992); Chauvin and*

Hirschey (1993); Aaker and Jacobson (1994); Lev and Sougiannis (1995); Mathur and Mathur (1995); Srivastava et al. (1998); Graham and Frankenberger (2000); Joshi and Hanssens (2002); Houston, Johnson and Simon (2002); Grullon, Kanatas, and Weston (2004); Yew, Keh and Ong (2005); Singh et al. (2005); Qureshi (2007) indicate the impact of advertisement expenditure on firm value. *Connolly and Hisrchey (1984)* observe the increase in advertisement to have a positive and significant effect on increasing the spread between the market value of assets and book value of assets. A feedback relationship between return on investment (ROI) and advertisement is observed due to which high ROI leads to higher expenditure on advertisement. Stock prices, in turn, react favourably to this expenditure. Adopting Tobin's *q* approach and regressing *q* on advertisement intensity, R&D intensity, industry concentration, growth and risk, *Hirschey and Weygandt (1985)* find that 'a one-unit increase in advertisement and R&D intensity will lead to large, consistent, positive effect on *q*. This implies that a portion of current period advertisement and R&D carries over to subsequent periods and suggests that a capitalisation and amortisation rather than current expense treatment is appropriate in most situations.' *Hirschey and Spencer (1992)* however, observe advertisement expenditures to have a durable effect on market value only in case of large firms. Viewing advertisement as a form of investment in intangible assets, *Chauvin and Hirschey (1993)* observe that advertisement expenditure has large, positive and consistent influence on the market value of the firm. *Chauvin and Hirschey (1994)* find advertisement an important source of goodwill. They also reveal that the goodwill effects of advertisement are consistently positive for both manufacturing and non-manufacturing firms. Their paper opines that spending on advertisement and R&D can be viewed as a form of investment in intangible assets with predictably positive effects on future cash flows. *Mathur and Mathur (1995)* use event study methodology and conclude that investors react positively to announcements of advertisement changes leading to higher market value for the firms. *Thomadakis (1977)*, for instance, uses a value-based analysis of the future-oriented implications of market structure. *Thomadakis (1977)* believes that a forward-looking index of profitability is a firm's market

value, which should reflect the ex-ante rate of return on investment. Similarly, *Hirschey and Wichern (1984)* argue that neither accounting nor market data provides an ideal measure of profitability and, hence, believe that a comparison of accounting and market data can prove highly beneficial. Using both accounting and market estimates of profitability as indicators of performance characteristics, *Hirschey and Wichern (1984)* find a significant role for R&D intensity, television advertisement, leverage and industry growth as determinants of profitability. Interestingly, they find no important role for traditional market structure variables (e.g. market share, concentration etc.) in their analyses. *Ben-Zion (1978)* was perhaps the first to use stock market data to measure a longer-term effect of advertisement and promotion (A&P) spending on the market value of the firm. If A&P spending is viewed as an investment that enhances future-period cash flows, A&P spending may serve as a signal to investors that the firm is systematically investing in future profits, and investors will adjust their valuation of firm stocks based on levels of firm spending on A&P activities. Alternatively, *Erickson and Jacobson (1992)* suggest that increases in firm spending on A&P may serve as a signal to the market that the firm has the discretionary funds required to undertake these activities. *Srivastava et al. (1998)* argue that advertisement can create market-based assets that may accelerate the timeliness of cash-flow occurrence, thereby improving over-all shareholder value. Advertisement can add to shareholder value by creating market-based assets: lower costs of sales and services to customers; secure price premiums through creation of perceived value identified with brand equity; and create competitive barriers, thereby enhancing and stabilizing cash flows and generating synergies among assets within a firm to improve productivity that may provide further competitive advantages *(Srivastava et al., 1998). Graham and Frankenberger (2000)* indicate that the results for the earnings and valuation regression taken together provide support for the asset value of advertisement. *Cheng and Chen (1997)*, indicate that scaler selection (i.e. the choice of deflator) can be one factor which may contribute to the empirical irregularities in the extant literature. Using US advertisement expenditure data obtained from COMPUSTAT, *Cheng and Chen (1997)*, show that differences

exist among empirical results on the relationship between advertisement spending and market value due to scaler selection. They suggest that empirical results should be explained in light of model specification. Similarly, *Keller (2002)* indicates that advertisement promotes brand equity, which in turn generates financial value through enhanced cash flows attributable to customer loyalty, increased marketing efficiency, brand extensions and higher margins. More recently, results in *Singh et al. (2005)* suggest a significant positive relationship between advertisement expenditure and market value added (MVA), implying that firms with higher product market advertisement also experience greater performance in terms of MVA. *Joshi and Hanssens (2002)* conclude that advertisement has a positive and persistent impact on market valuation that exists beyond advertisement's impact on customer response. *Yew, Keh and Ong (2005)* report that intensive investment in advertisement contributes positively to the one-year stock market performances in case of the non-manufacturing firms. However, their results are inconclusive whether manufacturing firms benefit from investment in advertisement as measured by the three-year stock market performance. An important contribution to the advertisement as an intangible asset literature came from *Hirschey (1982)*. While earlier studies attempt to relate advertisement with either sales or profitability, *Hirschey (1982)* uses a market valuation model, and regresses deflated market values on contemporaneous deflated values of a number of relevant variables including profit, advertisement, R&D, concentration, growth and risk. *Hirschey (1982)* employs data on national media advertisement from 'Leading National Advertisers' for a sample of 390 firms from 12 major product groups for the year 1977. Data on other accounting variables is obtained from 'Fortune', while the source of data for R&D is 'Business Week'. Investigating intangible capital, *Hirschey (1982)* finds that, on average, advertisement and R&D expenditure has significant market value (intangible capital) effect. On the basis of the estimation results for the valuation model, *Hirschey (1982)* suggests that both advertisement and R&D be treated as intangible capital assets and comments that 'we find support for their treatment as intangible capital since each has a highly significant positive influence on market

value ...'According to *Hirschey (1982)*, tax laws which permit an expensing of capital items result in substantial tax subsidies for affected firms. *Hirschey (1982)* thus seems to support early views (e.g. *Bloch 1974; Weiss 1969*, among others) regarding treatment of advertisement as an intangible asset in the accounts, as it will not only improve the equity of the tax system, but will also result in more accurate accounting records. In addition, *Hirschey (1982)* also points to a number of problems in, and limitations of, the previous studies for arriving at ambiguous results regarding the nature of advertisement. The problems mentioned by *Hirschey (1982)* include, for instance, the emphasis of previous studies on individual items' sales-related advertisement, while ignoring the importance of a firm's aggregate level of both 'product' and 'institutional' advertisement. According to this argument, in addition to product advertisement for an individual product, institutional advertisement is also important in building a unique corporate image of the firm among its potential customers. According to *Wilmshurst and Mackay (1999)*, corporate advertisement by major companies such as Philips, British Petroleum, Sony, ICI, Intel, etc. 'promote the company name in such a way that all of their products benefit from the values attached to their corporate identity ...'. *Hirschey (1982)* believes that, as both product and institutional advertisement might have a spillover effect, there might be instances where a weakening of the sales–product advertisement relationship for an individual product only is erroneously assumed as an absence of the durability effects of advertisement expenditure as a whole. *Hirschey (1982)* also questions earlier studies for not taking into account the multipurpose goals of advertisement. He argues that the goal of individual product advertisement might be quite different from the institutional advertisement. While the former is primarily intended to increase sales, the later type of advertisement is directed towards both increasing sales and reducing costs. Based on these observations, *Hirschey (1982)* believes that the firm's overall objective in advertisement is profit and suggests that, in order to avoid measurement errors, analysis of advertisement effectiveness must consider the complete body of intended effects.. Studying the

UK market, *Qureshi (2007)* observes that advertisement expenditures are significantly associated with increases in market value.

Advertisement can play a key role in achieving superior brand equity by communicating with potential customers *(Ailawadi et al., 2003; Srivastava et al., 1998)*. However, due to the failure of marketers to show the influence of marketing activities and costs on firm (shareholder) value, marketers could not justify its significance to the management. Marketers have rather relied on metrics such as sales volume and customer awareness *(Doyle, 2000)*. Further, advertisement plays a bigger role than other forms of marketing efforts in building and maintaining brand equity *(Aaker, 1991; Keller, 1998; Ailawadi et al., 2003)*.

Srivastava et al. (1998) throw some light on the way in which advertisement can help enhance the firm value. Their paper argues that firstly, advertisement helps improve customer relationships thereby influencing relational market-based assets. Customer relationships are created on the basis of value delivered to customers. A brand has a higher perceived value by the Customers when it can provide unique and superior product functionality, features, and quality as well as wider availability, greater ease of use, and better reputation and image. The major role of advertisement is to communicate these elements of brand value to customers, which further contributes to brand equity *(Keller, 1998; Srivastava and Shocker, 1991)*.

There are also studies that find little impact of advertisement on firm value. The studies of *Bublitz and Ettredge (1989)*; *Erikson and Jacobson (1992); Han and Manry (2004); Kundu, Kulkarni and Murthy (2010)* are prominent amongst those. Investigating the relationship between abnormal stock returns and the forecast errors for R&D and advertisement expenditure, *Bublitz and Ettredge (1989)* although supporting the earlier findings of *Hirschey (1982)* and *Hirschey and Weygandt (1985)* on R&D being valued as a long-lived asset, differ in the treatment of advertisement and argue for its treatment as an expense. *Erikson and Jacobson (1992)* conclude that once the effects of firm-specific factors and the

influence of profitability on discretionary spending are taken into account, advertisement expenditures do not increase the market value of the firm more than other types of investments or expenditures. *Han and Manry (2004)* find that the economic benefits of advertisement expenditure expire in the current period, as also is the case with other expenses. *Kundu, Kulkarni and Murthy (2010)* observe that increased advertisement has not been able to contribute conclusively in enhancing the firm value.

Belch and Belch (1998) suggest that advertisement is the most effective way to build the long-term franchise of a brand and therefore, it is very important to find the link between marketing communications especially advertisement to shareholder value. A number of studies have been conducted in order to find out the relationship between advertisement expenditure and firm value through sales and profitability. Very few papers study the direct relationship between advertisement expenditure and firm value *(Joshi and Hanssens, 2010)*. *Andras and Srinivasn (2003)* report positive relationship between Advertisement intensity and R&D intensity to the firm's performance. *Hirschey and Chauvin (1993)* find out that advertisement and R&D expenditure have large positive and consistent influence on the market value of the firm, which is why it is considered as investment in intangible assets with predictably positive effects on future cash flows. *Margy & Melvin (2005)* observe positive relationship between advertisement expenditure and promotional spending on market value of firm. *Qureshi (2007)* studies the relationship between advertisement expenditures and the market value of firms by using OLS. The study finds out that advertisement expenditures are significantly associated with increases in market value, suggesting that capitalizing advertisement expenditures is appropriate. Using OLS reports, *Siong (2010)* observes a statistically significantly positive relationship between advertisement and firm value. *Hlouskova & Tsigaris (2012)* observe the risk taking dynamics under prospect theory. *Kundu, Murthy and Kulkarni (2010)* use the data of 172 firms from 2000-2007 and find positive and significant relationship between advertisement expenditure and Tobin's Q accounting for firm size and leverage. *Bhattacharya (1994)* provides the evidence of positive

relationship between advertisement expenditure and consumers and firm performance, therefore it indicates the advertisement effectiveness have their impact on consumers and firm performance and offer perspectives for the firms in planning for more effective advertisement strategies to promote their products or services. *Frankenberger (2004)* studies 2662 firms to determine the economy-wide and industry effects than average advertisement spending has on earnings and market value recessionary periods and compared those effects of increased and decreased advertisement during recessionary period and indicated that advertisement creates a firm asset by contributing and claimed that increasing spending on advertisement during a recession leads to benefits that exceed the benefits of increasing advertisement during non-recessionary periods. concluded that firms should support advertisement budget wherever possible, as advertisement in general translates to an asset that is valued by stock market participants. *Shah and Stark (2004)* investigate the value relevance of the advertisement expenditure The results of the study showed a positive influence of advertisement expenditure on the market value of firms. *Shark and Stark (2004)* by splitting the sample into sub-sample of manufacturing and non-manufacturing of Large and small size, find advertisement expenditure to be relevant for large and non-manufacturing firms. *Shah and Shark (2005)* investigate whether advertisement expenditure help in forecasting future earning and are associated with market value by using valuation model found that major media advertisement expenditure valuation relevant and useful in predicting future value of earnings. Using the OLS method, *C'onchar, C'rask and Linkhan (2005)* examine the relationship between advertisement expenditure on firm market value, future cash flows and boost the shareholder wealth. *Merino, Srinivasan and Srivastava (2006)* study the relationship between advertisement and R&D expenditure on variability of cash flow and intangible cross-sectional to the panel data case to relate a firm's advertisement and R&D expenditure to the variability of cash flow and intangible firm value and concluded that advertisement impacts on the variability of cash flow and intangible value are different, which

advertisement expenditure they found that advertisement stabilizes both cash flow and intangible value in turbulent and competitive environments. *Qureshi (2007)* investigates the relationship between advertisement expenditure and the market value of firms. Advertisement expenses are significantly related with the increase in market value suggested that investment in advertisement should be capitalized and then amortized rather than treated as expense item. *Gupta (2008)* studies the effect of advertisement on the firm performance 10 year (1997-98 to 2006-2007) of Automobile, Textile and Food by applying Least square. This paper notes that results of advertisement certainly affect the firms depending on their nature. It further claims that it is evident that advertisement has positive and significant effect on sales of firms while it has significant adverse effect on profitability. Automobile industry shows positive impact of advertisement on sales as well as profitability alongwith firm value. *Hsu and Jang (2008)* study the relationship between advertisement expenditure, intangible value, and risk in stock returns of restaurant firms. They suggest that advertisement expenditure creates intangible benefit to restaurant firms. They also note that advertisement may affect product introduction, positioning, and differentiation which lead to a restaurant firm's success. *Wang, Zhang and Ouyang (2008)* study the nature and degree of advertisement effect on firm intangible values by applying Time series approach. They report that advertisement effects on firm's intangible assets are sustainable and accumulative and support the asset or investment like characteristic of advertisement expenditure. Using Cointegration model, *Leong et al (1996)* reveals that a strong positive relationship exists between advertisement expenditure and sales. *Leach and Reekie (1996)* apply Granger causality test and find that advertisement expenses cause sales but sales do not simultaneously cause advertisement. *Metwally (1997)* explains the variations in the growth rates of advertisement expenditure of consumer goods and services that the growth in advertisement expenditure is strongly correlated with the growth in sales and that movement in market shares exerts a significant effect on the growth in advertisement expenditure.

A typical valuation study (also known as 'levels' studies) involves regression analyses of a number of relevant variables. The variable used on the left-hand side of the regression equation is the dependent or 'regressed' variable. Variables to the right-hand side of the equation are the independent or 'explanatory' variables, which are also called 'regressors'. The dependent variables often used are either the market value of the firm, or the market value deflated by some size variable (e.g. book value, sales etc.), or simply the price–earnings ratio. Scale effect is believed to exist when large firms exert undue influence on the estimated regression coefficients. As a consequence, it is normal practice to deflate variables included in a valuation model by some scale proxy (e.g. sales, book value, number of shares outstanding or open market value, etc.) in an attempt potentially to mitigate econometric problems such as heteroscedasticity (see e.g. Akbar and Stark 2003; Easton 1998). The number and choice of the independent or explanatory variables varies from study to study, ranging from including components of earnings and book value to the inclusion of additional market structure variables (e.g. growth, market share, concentration and risk etc).

Hirschey and Weygandt (1985) also use a market value-based investigation of advertisement and R&D as intangible capital. *Hirschey and Weygandt (1985)* adopt a slightly different approach by regressing Tobin's q on advertisement intensity, R&D intensity, industry concentration, growth and risk. According to the results in *Hirschey and Weygandt (1985)* – 'a one-unit increase in advertisement and R&D intensity will lead to large, consistent, positive effecton Q. This implies that a portion of current period advertisement and R&D carries over to subsequent periods and suggests that a capitalisation and amortisation rather than current expense treatment is appropriate in most situations.'

Barth et al. (1998) use both a market valuation and returns specification to investigate the value relevance of brand value estimates provided by the 'Financial World' for a sample of 183 firms (covering 204 brand value estimates) over the period 1991–1996. In addition to performing a number of other analyses, Barth et al. (1998) employ various alternative proxies for brand values (including

advertisement) to examine any incremental value relevance of the brand value estimates. Barth et al. report that the brand value estimates reflect value-relevant information, not reflected in these alternative proxies.

2.4 Theoretical Framework

The research attempts have been made in the past to study the impact of advertisement expense on sales, profits and firm value. However, the focused studies covering a specific industry in a country are not found so commonly. Moreover, the research efforts in the past have largely concentrated on observing the impact of advertisement expense on firm value indirectly, i.e., by studying the impact of advertisement on sales, followed by the impact of sales on profits and finally by studying the impact of profits on firm value *(Dekimpe and Hanssens, 1995; Lee et al, 1996; Leong et al, 1996; Joshi and Hanssens, 2010).* In fact, advertisement expense, sales and profitability also has a direct impact on firm value. This issue has broadly been ignored by the previous researches. The current study attempts to bridge this gap by studying both direct and indirect impact of advertisement expense on firm value.

Usually, manufacturing companies' advertisement spending are higher than the service companies *(Singh and Asress, 2012)*. Besides, the sales in currency as well as sales in units are both visible in case of manufacturing companies, as against the service companies where only the sales in currency are visible and sales in units are not. Therefore, choosing a manufacturing industry for the purpose of such study makes sense. FMCG industry, being one of the most diverse manufacturing industries forms the scope of the study. One hundred BSE-listed companies from the FMCG industry selected randomly are used as the sample for the study.

Table 2.1 presents a brief summary of the literature concerning the relationship between advertisement expenditure and firm's performance.

Table 2.1

Summary of related literature

Title	Authors	Year	Objectives	Tools	Findings
Accounting and Market-Value Measures of Profitability: Consistency, Determinants, and Uses	Mark Hirschey; W. Wichern	1984	1. To learn whether accounting & market data provide consistent or independent measure of profitability; 2. To determine if there is a difference between accounting and market value 3. Are the profit measures caused by industry related factors or by firm specific influences and/or accounting conventions; 3. To consider the determinants of profitability within a framework that allows for imperfect nature of profit measures.	1. Correlation; 2. Factor Analysis; 3. Linear structural model; 4. Q ratio	1. Neither accounting nor market data provides an ideal measure of profitability; 2. A comparison of accounting and market data can prove highly beneficial; 3. There is a significant role for R&D intensity, television advertisement, leverage and industry growth as determinants of profitability; 4. There is no important role for traditional market structure variables (e.g. market share, concentration etc.) in their analyses
Advertisement, R&D Expenditures and the Market Value of the Firm	Keith W. Chauvin and Mark Hh'sciaey	1993	1. Impact of advertisement expenditure on market value of the firm; 2. Impact of R & D on market value of the firm	Regression	Advertisement and R & D expenditure have large, positive and consistent influence on the market value of the firm that is why it is considered as an investment in intangible assets with predictably positive effects on future cash flows

Causality among sales, advertisement and prices: new evidence from a multivariate cointegrated system	Francisco F. R. Ramos	1996	Dynamic causal relationships (in the Granger (temporal) sense) among sales and advertisement	1. Johansen's Cointegration Analysis; 2. Vector Error Correction Model; 3. Variance Decomposition Analysis; 4. Granger's Causality	1. Result Based on VECM reflects each Explanatory variable A & P Granger causes sales in the short run (F-test) but proportionately by which the sales are adjusted to long run equilibrium is nevertheless significant (t-test); 2. VECM reflects that Advertisement remain unexplained by exogenous variables as proved by (F & t-test); 3. There exists strong one-way relationship between advertisement and sales; 4. There exists feedback relationship between sales and prices
The Competitive Effects of Advertisement in the US Automobile Industry, 1970± 94	Matthias R Greuner, David R Kamerschen and Peter G Klein	2000	To examine the effects of advertisement on competition in the US automobile industry	1. Correlation; 2. Regression	These firms cannot increase their profits above normal levels by increasing their advertisement expenditures. Advertisement serves primarily to transmit information, not to create entry barriers
The Contribution of Changes in Advertisement Expenditures to Earnings and Market Values	Roger C. Graham, Jr, Kristina D. Frankenberger	2000	1. To extend prior research by establishing a link between advertisement expenditures and future earnings. Connecting current-year advertisement expenditures with future earnings provides a reasonable estimate of the asset value of advertisement	1. Valuation Regression; 2. Tobin Q	The results provide a strong indication of contribution of advertisement expenditures to earnings and market values

			expenditures; 2. To examine whether advertisement assets as derived from the association between advertisement Expenditure and future earnings are associated with firm value		
Effects of Advertisement on U.S. Non-Alcoholic Beverage Demand: Evidence from a Rotterdam Model	Xiao, Hui; Kinnucan Henry W; Kaiser, Harry M	2001	Impact of advertisement of non-alcoholic beverages on aggregate demand	Rotterdam Model	1. The hypothesis that advertisement affects the total demand for non-alcoholic beverages is rejected; 2. Advertisement affects the distribution of expenditures within the non-alcoholic beverage group, but has no effect on total expenditures. This finding is in line with Duffy's work (1987, 1990, 1991) on alcoholic beverage advertisement in the United Kingdom.
Linking marketing to shareholder value in Listed and Non-listed markets	Victoria Louise Hodgson	2003	Impact of Advertisement on shareholder value	1. Descriptive statistics like Frequency Distribution and Cross tabulations; 2. Correlation; 3. Regression; 4. t-test	1. Advertisement has a significant impact on stock prices and vis-à-vis on shareholder value via stock prices; 2. Advertisement has a greater impact on the sales of larger firms and this is probably related to the higher brand power of large firms; 3. Advertisement expenditure has significant explanatory power for sales, but that these effects will differ in functional relationship and impact according to size and

					industry decomposition; 4. There is a significant difference between the advertisement and sales ratios for small and large firms. The results confirmed that there is a significant difference, indicating different managerial philosophies with regard to advertisement expenditure.
The effect of advertisement on the market value of firms: Empirical evidence from the Super Bowl ads	Jooyoung Kim, Jon D Morris	2003	1 To explore whether investors behave like consumers, and make investment decisions based on their response to advertisements as consumers; 2. To understand whether investors view advertisement as an investment, and therefore use a restricted approach to evaluating the impact of advertisement on the market value of the advertised product's company.	1. Anova; 2. Event study methodology	Investors' reactions to the advertisement is not dependent on the likeability of the advertisement or frequencies of advertisement.
Advertisement Intensity and R&D Intensity: Differences across industries and their impact on Firm's performance	Trina Larsen Andras and Srini S Srinivasan	2003	1. Impact of advertisement intensity on the profit margin; 2. Impact of R & D intensity on the profit margin	Regression	Advertisement intensity and R&D intensity are positively and significantly related to the firm's performance.

An investigation of the long-run impact of advertisement expediture on sales	Confidence W. Amadi, Florida A&M University	2004	1. To investigate the long-run properties of the sales-advertisement expenditure; 2. To study the causal relationship between sales and advertisement expenditure is investigated (significantly)	1. Augmented Dickey-Fuller unit-root test; 2. Johansen's cointegration; 3. Granger's Causality	1. There is no significant long-run relationship between the levels of sales and advertisement expenditure rather, it is the growth rates that are relevant; 2. The impact of time on the long-run relationship between these variables is highly significant indicating that time is relevant variable in establishing the long term relationship between sales growth and growth of advertisement expenditure; 3. Granger causality test provides mixed results on the impact of sales on advertisement expenditure and vice versa; 4. The slope of the VECM equation is mixed for the firms studied, with eight of the fifteen firms having a positive value; 5. There is a a long-run relationship between sales and advertisement expenditure inferring the use of capital budgeting procedure to evaluate advertisement expenditure rather than the prevailing percentage of sales approach
Advertisement expenditure and firm profitability: an investigation	C W Amadi	2005	To study the long-run relationship and causal implications between advertisement and operating income.	1. Johansen's Cointegration; 2. Vector Autoregression Model; 3. Granger's Causality; 4. Vector Error Correction Model	1. Johansen's cointegration provides a mixed insight into the nature of advertisement expenditure for the household products industry. Of the nineteen firms studied, only ten firms exhibited long-run relationship between advertisement expenditure

					and operating income; 2. Time is a relevant variable in establishing the long-run relationship between operating income and advertisement expenditure; 3. Granger causality test provides mixed results on the impact of operating income on advertisement expenditure and vice versa. The result indicates that, for all but two of the firms studied, causality runs strongly from operating cash flow to advertisement expenditure. For the remaining firms, the tests indicate and support the inter-dependence of operating cash flow and capital expenditure through the bi-directional Granger causality between operating income and capital expenditure; 4. The slope of the operating income in the capital expenditure VECM equation is positive for seven of the firms studied. The positive slope implies that increase in operating income increases advertisement spending. The bi-directional causality implies that the resulting increase in advertisement increases operating income and the cycle continues. On the other hand, the three firms with negative VECM slope indicates that advertisement expenditure for these firms is a prompted by declining profitability. For the firms

					with negative slope on the operating income VECM, increase in advertisement expenditure results in a decrease in operating income. For these firms advertisement has a negative impact on shareholder wealth by decreasing operating income.
Advertisement, Market Share, and Profitability in the Greek Consumer Industry	Zoe Ventoura–Neokosmidi	2005	To examine the relationship between the gross profit, the market share, as an appropriate strategy, and the plasmatic differentiation (measured by advertisement expenses)	Cross-section analysis	1. Market share greatly influences profitability; 2. Advertisement to sales ratio seems to affect profitability less than market share
The Direct, Indirect and feedback effects of Marketing Actions	Amit Madhav Joshi	2005	1. Interaction Effect of Advertisement effect on movies Profitability; 2. Advertisement having long run direct effect on stock prices over and above its effects on sale; 3. Existence of feedback effect in context of innovation in automobile industry	1. Time-series econometrics; 2. Event study methodology	1. Advertisement can have long-run direct effect on stock prices, which is above and beyond its effect on sales; 2. Foreign firms are more likely to have innovation momentum which gives them a long-term strategic advantage; 3. Pre-launch advertisement helps create expectations of movie performance, which leads to stock price correction post-launch.

Asset value of UK firms' advertisement expenditure	Maqsood Iqbal Qureshi	2007	To study the relationship between advertisement expenditures and the market value of firms	Multiple Regression	Advertisement expenditures are significantly associated with increases in market value, suggesting that capitalizing advertisement expenditures is appropriate
The effect of competitive advantage interference on sales for packaged goods	André Bonfrer, Peter J. Danaher, Sanjay Dhar	2008	To examine the effect of competitive advertisement on sales	1. Regression; 2. Econometric methodology	Increasing advertisement for the focal brand will increase its sales. However, the amount by which its sales increase very much depends on the competitive clutter, with high levels resulting in lower sales lift.
Value relevance of advertisement expenditure: A review of the literature	Syed Zulfiqar Ali Shah and Saeed Akbar	2008	To review the studies that relate advertisement to profitability or sales of the firm or industry to investigate the effects of advertisement expenditure		1. There has been a recent shift to the use of valuation models in exploring the nature of advertisement expenditure. Valuation is seen as a better alternative in exploring the intangible nature of advertisement expenditure; 2. Bulk of evidence on advertisement value relevance comes from the US, where there has historically been greater disclosure of advertisement expenditure. There appears to be little evidence on this matter in the UK, because of lack of advertisement data in UK.
Brand Portfolio Strategy and Firm Performance	Neil A. Morgan & Lopo L. Rego	2009	To examine the the relationship between the brand portfolio strategy characteristics and marketing and financial performance	1. Regresion; 2. Tobin's Q	1. Market concentration (HHI) is associated negatively with firms' cash flows and consumer loyalty and positively with market share and relative advertisement expenditures;

					2. Firms' marketing effectiveness and efficiency explain significant additional variance
The Direct and Indirect effects of Advertisement spending on firm value	Amit Joshi & Hannsens	2009	To study the long run relationship between advertisement spending and Market Capitalization / Firm Value above and beyond its effect on sales Revenue and profits. Long run relationship between advertisement spending and Market Captilization / Firm Value above and beyond its effect on sales revenue and profit	1. Vector Autoregression ; 2. Impulse Response Function	1. Advertisement spending has positive and long run impact on own firm's market capitalization and may have negative impact on valuation of competitor of comparable size; 2. There are several cases of significant investor response even when there is no consumer response i.e., there is an increase in firm value even in the absence any impact on sales. Thus advertisement has positive impact even if it no measurable impact on sales
An Empirical Analysis: Advertisement Effects on Firm Performance in the Malaysian Consumer Products sector	Gan Kien Siong	2010	1. To determine whether there was Positive relationship between Advertisement Expenditure and Profitability; 2. To determine whether there was Positive relationship between Advertisement Expenditure and Firm Value	Ordinary Least Square Regression Analysis	1. Linear regression shows that there was a positive relation between Advertisement and it is statistically significant with both variables of firm performance which are firm Profitability and firm Value; 2. Sales Variables are found only to be significant with Firm Profitability not with Firm Value.

Advertisement and Firm Value: Mapping the relationship between Advertisement ,Profitibility and Business Strategy in India	Anindita Kundu, Anantha Murthy N.K., Prashant Kulkarni	2010	1. Impact of advertisement on profitability of the firm; 2. Does advertisement add value to the firm; 3. Differences between the impact both in degree and time across the industry; 4. Implications for the marketers	1. Q ratio; 2. Correlation 3. Multiple Regression; 4. Anova	1. There is positive correlation between Advertisement Spending and PAT and also between Advertisement Spending and Net Sales; 2. Advertisement spending is positively correlated with Tobin's Q accounting for firm size and leverage
The effect of marketing communications on the sales performance of Ghana Telecom (Vodafone, Ghana)	Nana Yaa Dufie Okyere, Gloria G Q Agyapong, Kwamena Minta Nyarku	2011	To examine the relationships existing between marketing communications activities and the sales performance of Vodafone	Multiple regression analysis	1. There is strong relationships between sales promotion, advertisement budgets and total sales; 2. An inverse relationship between TV advertisements and sales; 3. Negative relation between sponsorship budget and total sales
The effect off marketing spending on sales in the premium car segment: New evidence from Germany	Jesus Crespo-Cuaresma, Matthias Stoeckl	2012	To analyze the relationship between marketing expenditures and sales in the German premium automobile market	Vector Error Correction Model	There exists a positive marketing-sales relation even after including an error term structure including model- xed and time- xed e ects, as well as product life cycle specific trends
An Econometric Measurement of the Impact of Marketing Communication on Sales in the Indian Cement Industry	Somroop Siddhanta, Neelotpaul Banerjee	2012	The study analyzes time series data pertaining to advertisement, sales promotion, direct marketing and personal selling expenditures, collectively referred to as Integrated	1. Augmented Dickey-Fuller Unit-root test; 2. Vector Autoregression ; 3. Impulse Response Function; 4. Forecasting Error Variance Decomposition	Although past sales do not influence current advertisement, advertisement and sales promotion have a significant effect on the sales of cement after one year.

			Marketing Communications (IMC) and its causal nexus with Net Sales revenue of some Indian firms operating in India		
The optimal level of advertisement and long run equilibrium relationship between advertisement and profits. The case study of Iraninan Sepah bank	Hamid ,Nadar and Meena	2012	1. To study the existence of long run relationship between Advertisement Expenditure & sales; 2. To study the long term relationship between Advertisement Expenditure and profits	1. DorfMan Steiner Model; 2. Regression; 3. Johansen's Cointegration; 4. Error Correction Method; 5. F-test	There is existence of long term Relationship Between Advertisement Expenditure and Profitability
The impact of promotional tools on sales growth (evidence from Northern rural areas in Pakistan)	Kamran Ahmed, Nasir Mehmood, Sobia Irum, Afsan Sultana	2012	To study whether 1. TV Advertisement has a positive significant effect on sales growth; 2. Print media has a positive significant effect on sales growth; 3. Billboards have a positive significant effect on sales growth; 4. LCD has a positive significant effect on sales growth	1. Factor Analysis; 2. Regression	The first hypothesis of the research study is accepted as TV advertisement have a positive significant effect on sales Growth. The second hypothesis of the research is rejected due to positive insignificant impact with sales growth. The third hypothesis of the study is also rejected as Bill board has a negative impact with sales growth and the impact is insignificant. The fourth hypothesis is about LCD‟s which is also rejected as the LCD‟s have a negative insignificant effect on sales growth.

CHAPTER THREE

RESEARCH DESIGN

The study attempts to explore the impact of advertisement expenditure on firm performance. For measuring the firm performance, the study uses variables in the form of sales, profits and firm value. The advertisement spending is higher in manufacturing companies' than the service companies. Similarly, for manufacturing companies, the sales in currency and the sales in units are both visible, whereas in service companies only the sales in currency are observable, sales in units are not. Hence, the study focuses on the manufacturing sector.

This chapter presents the research design used for the purpose of the study. The chapter is divided into three sections including (a) Sampling Design and Data collection; and (b) Data analysis and reporting.

3.1 Sampling Design and Data Collection

For understanding the impact of advertisement expenditure on firm's performance, it is essential to focus on an industry wherein the advertisement spending is considerably high. It has largely been observed that the advertisement expenditure for the manufacturing sector is higher when compared with other sectors of the economy *(FICCI, 2013)*. Further in the manufacturing sector, Fast-moving consumer goods (FMCG) industry, in particular, reports high advertisement spending.

On the other hand, the manufacturing sector reports its sales in units as well as in rupees unlike the services sector, which can only report its sales in rupees. In the manufacturing sector, FMCG industry witnesses high volatility in sales. The empirical researches also point out that the sales in FMCG sector are more sensitive to the advertisement spending as compared with other sectors of the economy *(Balyan, 2011)*. Therefore, it makes sense for the study to focus on the FMCG industry.

The study uses one hundred Bombay Stock Exchange (BSE)-listed companies from the FMCG industry. The companies are selected on random basis. The detailed list of the selected FMCG companies is as under –

Table 3.1

List of the sample companies

S	Name of the Company
1	ADF FOODS LIMITED.
2	ADOR MULTIPRODUCTS LTD
3	ADVANCE PETROCHEMICALS LTD.
4	AGRO DUTCH INDUSTRIES LTD.
5	AJANTA SOYA LIMITED
6	ASIAN TEA & EXPORTS LTD.
7	ASSAM COMPANY (INDIA) LIMITED
8	ASSAMBROOK LIMITED
9	ASSOCIATED ALCOHOLS &
10	AVANTI FEEDS LTD.
11	AVT NATURAL PRODUCTS LTD.
12	B & A LTD.
13	BAMBINO AGRO INDUSTRIES LTD
14	BEEYU OVERSEAS LTD.
15	BHARTIYA INTERNATIONAL LTD.
16	BHATINDA CHEMICALS LTD
17	BKV INDUSTRIES LTD.
18	BLISS GVS PHARMA LIMITED
19	BRITANNIA INDUSTRIES LTD.
20	CCL PRODUCTS (INDIA) LTD.
21	CERA SANITARYWARE LTD.
22	CHAMAN LAL SETIA EXPORTS LTD.
23	CHOKSI IMAGING LTD.
24	COLGATE-PALMOLIVE (INDIA) LTD
25	CUPID LIMITED
26	DABUR INDIA LTD.
27	DAIRYFIELD LTD.
28	DFM FOODS LTD.
29	DHUNSERI PETROCHEM & TEA
30	DIANA TEA CO.LTD.
31	DIVYA JYOTI INDUSTRIES LTD.
32	EMAMI LTD
33	EMPEE DISTILLERIES LTD
34	EVEREADY INDUSTRIES INDIA LTD.
35	FLEX FOODS LTD.

36	FOODS & INNS LTD.
37	G.M. BREWERIES LTD.
38	GAYATRI BIOORGANICS LTD
39	GILLETTE INDIA LTD.
40	GLAXOSMITHKLINE CONSUMER
41	GLOBUS SPIRITS LIMITED
42	GODFREY PHILLIPS INDIA LTD.
43	GODREJ CONSUMER PRODUCTS LTD.
44	GOLDEN TOBACCO LTD.
45	GOODRICKE GROUP LTD.
46	GRM OVERSEAS LTD.
47	GUJARAT AMBUJA EXPORTS LTD.
48	HANUMAN TEA CO. LTD.
49	HARYANA LEATHER CHEMICALS
50	HATSUN AGRO PRODUCTS LTD.
51	HERITAGE FOODS (INDIA) LTD.
52	HILLOCK AGRO FOODS (INDIA) LTD.
53	HIND INDUSTRIES LTD.
54	HINDUSTAN PHOTO FILMS MFG. CO.
55	HINDUSTAN UNILEVER LTD.
56	HIPOLIN LTD.
57	IFB AGRO INDUSTRIES LTD
58	INDAGE VINTNERS LTD
59	INDIAN EXTRACTIONS LTD.
60	INDO BIOTECH FOODS LTD
61	IOL CHEMICALS &
62	ITC LTD
63	IVP LTD.
64	J.L. MORISON (INDIA) LTD.
65	JAGATJIT INDUSTRIES LTD.
66	JAGDAMBA FOODS LTD.
67	JAY SHREE TEA & INDUSTRIES LTD.,
68	JK SUGAR LIMITED
69	JVL AGRO INDUSTRIES LIMITED
70	JYOTHY LABORATORIES LIMITED
71	KHODAY INDIA LTD.,
72	KLRF LTD
73	KOHINOOR FOODS LTD
74	KOTHARI GLOBAL LIMITED
75	KRBL LTD.
76	KWALITY DAIRY (INDIA) LTD.
77	LAKHANI INDIA LTD.
78	LAKSHMI OVERSEAS INDUSTRIES
79	LAWRESHWAR POLYMERS LIMITED

80	LEDO TEA CO. LTD.
81	LIBERTY SHOES LTD.
82	LOTUS CHOCOLATE CO. LTD.
83	MADHUSUDAN INDUSTRIES LTD.
84	MAHAAN FOODS LTD.
85	MARICO LIMITED
86	MAYA AGRO PRODUCTS LTD.
87	MAYUR LEATHER PRODUCTS LTD.
88	VIJAY SOLVEX LTD.
89	VIKAS GRANARIES LIMITED
90	VIMAL OIL & FOODS LTD.
91	VIPPY INDUSTRIES LTD.
92	VIRAT CRANE INDUSTRIES LTD
93	VST INDUSTRIES LTD.
94	WADALA COMMODITIES LIMITED
95	WARREN TEA LTD.
96	WATERBASE LIMITED
97	WELTERMAN INTERNATIONAL LTD.
98	WINSOME BREWERIES LTD.
99	WORLDWIDE LEATHER EXPORTS
100	ZYDUS WELLNESS LIMITED

The sample period for the study is 10 years ranging from 2001–2002 to 2010–2011. In a study related to advertisement, a longer period is not suitable as the advertisement patterns of the industry undergo major transformation in a longer period. Further, in the light of the competitive environment in the manufacturing sector of India, every decade witnesses change in the competitive positions of the market players. Therefore, the study uses a sample period of ten years.

The data for sample companies have been collected from the annual reports of the respective companies. Wherever necessary, CMIE Prowess database has also been used for data collection purposes.

3.2 Data analysis and reporting

The study uses descriptive statistics and econometric tools for analyzing the data. In the case of econometric analysis, all the hundred companies have been grouped together and the data for all the ten years has been grouped together as well. In this way, the number of data points rises to 1000 (10 x 100). However, there is a

threat while grouping different companies into one group because of the difference in magnitude of advertisement expenditure and sales revenue of the companies. The study uses indexing as a means to remove this defect. Data for all the companies is adjusted with an index of 100 in order to ensure uniformity across the companies. Afterwards, log of the series has been computed in order to find out the change in advertisement expenditure, sales revenue and profit across various data points. Several methodological works in econometric analysis suggest such direction for grouping together the data points for different cases *[Theil (2008), Anselin (1988), Fair & Shiller (1990), Franses & Van Dijk (1996), Brooks, Clare and Persand (2000), Arellano (2003), Brooks (2008), Sharma & Bodla (2011)].*

While the data for advertisement expenditure, sales and profits are taken from the sources as mentioned in the previous section of this chapter, the computations have been done with regard to the firm value. Ratio *Q* developed by James Tobin of Yale University, Nobel laureate in economics, has been extensively used as a proxy for firm value. *Tobin (1969)* hypothesizes that the combined market value of all the companies on the stock market should be about equal to their replacement costs.

The Tobin q has been employed particularly by manufacturing firms to explain a number of diverse corporate phenomena. These have entailed (a) cross-sectional differences in investment and diversification decisions, (b) the relationship between managerial equity ownership and firm value, (c) the relationship between managerial performance and tender offer gains, investment opportunities and tender offer responses, and (d) financing, dividend, and compensating policies (*Chung and Pruitt, 1994*). It is a statistic that might serve as a proxy for the firm's value from an investor's perspective. By definition, it is the ratio between the market value of the firm's assets and the replacement value of those assets calculated as follows:

$$\text{Q Ratio} = \frac{\text{Total Market Value of Firm}}{\text{Total Asset Value}}$$

A number of improvised models of 'Q' have been developed by the researchers after Tobin giving the 'Q' ratio. These include L-R algorithm and many other improvised methods. To make Q a more useable research construct, *Chung and Pruitt (1994)* develop an approximation, Approximate Q, using readily available accounting data, as given below –

$$\text{Approximate Q} = \frac{(MVE+PS+Debt)}{TA}$$

where, MVE is the market value of the firm's equity;

PS is the liquidating value of the preferred stock;

DEBT is the book value of the short-term liabilities minus its short-term assets plus the book value of long-term debt; and

TA represents the book value of the firm's total assets.

Tests reported by *Chung and Pruitt (1994)* show that Approximate Q explains more than 96% of the variability in Q estimated by the more theoretically correct Lindenberg and Ross method.

Approximate Q has been widely used in diverse areas of financial study, including capital structure, firm performance, industrial diversification, earnings management, pollution reduction, and strategic competition.

The present study uses descriptive analysis and econometric analysis for conducting the data analysis. In the descriptive statistics, the study presents Mean, Median, Standard Deviation, Skewness, Kurtosis, Coefficient of variation and Jarque-bera statistic.

The *mean* is a particularly informative measure of the "central tendency" of the

variable if it is reported along with its confidence intervals. The confidence intervals for the mean give us a range of values around the mean where we expect the "true" (population) mean is located (with a given level of certainty).

$$\text{Mean} = \frac{\sum X_i}{n} \tag{3.1}$$

A measure of central tendency, the *median* (the term first used by Galton, 1882) of a sample is the value for which one-half (50%) of the observations (when ranked) will lie above that value and one-half will lie below that value. When the number of values in the sample is even, the *median* is computed as the average of the two middle values.

The *standard deviation* is a commonly used measure of variation. The *standard deviation* of a population of values is computed as:

$$\sigma = \sqrt{\frac{\sum \left(x_i - \mu\right)^2}{N}} \tag{3.2}$$

where

μ is the population mean and N is the population size

The sample estimate of the population *standard deviation* is computed as:

$$s = \sqrt{\frac{\sum \left(x_i - \bar{x}\right)^2}{(n-1)}} \tag{3.3}$$

where

$\bar{x}$ is the sample mean and n is the sample size

The *coefficient of variation* measures the dispersion of data points around the mean. Calculated as the ratio of the standard deviation divided to the mean, the coefficient of variation can be used to compare the degree of variation from one sample to another, even if the means are different.

$$\text{CV} = \frac{s}{\bar{x}} \tag{3.4}$$

where

s is the sample standard deviation and x-bar is the sample mean.

When the standard deviation and mean come from repeated measurements of a single subject, the resulting coefficient of variation is an important measure of reliability. The coefficient of variation is sometimes reported as a percentage (i.e., CV*100%).

Skewness measures the deviation of the distribution from symmetry. If the skewness is clearly different from 0, then that distribution is asymmetrical, while normal distributions are perfectly symmetrical.

$$\text{Skewness} = \frac{nM_3}{(n-1)(n-2)s^3} \tag{3.5}$$

where

M_3 is equal to: $\sum_{i=1}^{m}\left(x_i - \bar{x}\right)^3$

s^3 is the sample standard deviation raised to the third power

n is the valid number of cases.

Kurtosis measures the "peakedness" of a distribution. If the *kurtosis* is clearly different than 0, then the distribution is either flatter or more peaked than normal; the *kurtosis* of the normal distribution is 0. *Kurtosis* is computed as:

$$\text{Kurtosis} = \frac{n(n+1)M_4 - 3M_2^{\,2}(n-1)}{(n-1)(n-2)(n-3)s^4} \tag{3.6}$$

where

$$M_2 = \sum_{i=1}^{m}\left(y_i - \bar{y}\right)^2$$

$$M_4 = \sum_{i=1}^{m} \left(y_i - \bar{y} \right)^4$$

n is the valid number of cases

s^4 is the sample standard deviation raised to the fourth bar

The Jarque–Bera test is a goodness-of-fit measure of departure from normality, based on the sample kurtosis and skewness. The test is named after Carlos Jarque and Anil K. Bera. The test statistic JB is defined as –

$$JB = \frac{n}{6}\left(S^2 + \frac{1}{4} K^2 \right) \tag{3.7}$$

where n is the number of observations (or degrees of freedom in general); S is the sample skewness, and K is the sample kurtosis.

The statistic *JB* has an asymptotic chi-square distribution with two degrees of freedom and can be used to test the null hypothesis that the data are from a normal distribution. The null hypothesis is a joint hypothesis of the skewness being zero and the excess kurtosis being 0, since samples from a normal distribution have an expected skewness of 0 and an expected excess kurtosis of 0 (which is the same as a kurtosis of 3). As the definition of *JB* shows, any deviation from this increases the JB statistic.

Data have been analyzed using econometric tools also. In the econometric analysis, the study performs Johansen's cointegration, Augmented Dickey-Fuller unit-root test, Vector Autoregression (VAR), Variance Decomposition Analysis (VDA), Impulse Response Function (IRF) and Vector Error Correction Model (VECM). Out of the tools of econometric analysis applied in the study, Johansen's cointegration analysis and Vector Error Correction Model has been applied on the raw series, while the remaining analysis has been conducted on the dlog of the series under reference.

Most of the econometric analysis can only be performed on a series of stationary nature. In order to check whether or not the series are stationary, we prepare the line graph for each of the series. In order to further confirm the (stationary) nature of the series. Further, we perform the Augmented Dickey-Fuller test under the unit root test to finally confirm whether or not the series are stationary. For the basic understanding of Unit root testing, we may look at the following equation

$$y_t = \rho\, y_{t-1} + x_t'\delta + \varepsilon_t \qquad (3.8)$$

where, x_t are optional exogenous regressors which may consist of constant, or a constant and trend, $\rho$and $\delta$are parameters to be estimated, and the $\varepsilon_t$are assumed to be white noise. If $|\rho| \geq 1$,y is a nonstationary series and the variance of y increases with time and approaches infinity. If $|\rho|<1$,y is a (trend-)stationary series. Thus, we evaluate the hypothesis of (trend-)stationarity by testing whether the absolute value of $|\rho|$ is strictly less than one.

The Standard Dickey-Fuller test is carried out by estimating equation (3.9) after subtracting y_{t-1} from both sides of the equation.

$$\Delta y_t = \alpha\, y_{t-1} + x_t'\delta + \varepsilon_t, \qquad (3.9)$$

where$\alpha = \rho - 1$. The null and alternative hypotheses may be written as,

$$H_0 : \alpha = 0$$

$$H1 : \alpha < 0$$

In order to make the series stationary, we take the dlog of the series under reference.

The vector auto regression (VAR) is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. The VAR approach sidesteps the need for structural modeling by treating every endogenous variable in the system as a

function of the lagged values of all of the endogenous variables in the system. The mathematical representation of a VAR is:

$$y_t = A_1 y_{t-1} + \ldots\ldots + A_p y_{t-p} + Bx_t + \varepsilon_t \quad (3.10)$$

where y_t is a k vector of endogenous variables, x_t is a d vector of exogenous variables, $A_1, \ldots\ldots, A_p$ and B are matrices of coefficients to be estimated, and ε_t is a vector of innovations that may be contemporaneously correlated but are uncorrelated with their own lagged values and uncorrelated with all of the right-hand side variables.

The study further applies the Variance Decomposition Analysis in order to finally quantify the extent upto which the series are influenced by each other. While impulse response functions trace the effects of a shock to one endogenous variable on to the other variables in the VAR, variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR. Thus, the variance decomposition provides information about the relative importance of each random innovation in affecting the variables in the VAR.

A shock to the i-th variable not only directly affects the i-th variable but is also transmitted to all of the other endogenous variables through the dynamic (lag) structure of the VAR. An impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables. If the innovations are contemporaneously uncorrelated, interpretation of the impulse response is straightforward. The i-th innovation is simply a shock to the i-th endogenous variable. Innovations, however, are usually correlated, and may be viewed as having a common component which cannot be associated with a specific variable. In order to interpret the impulses, it is common to apply a transformation to the innovations so that they become uncorrelated:

$$v_t = P\epsilon_t \sim (0, D) \quad (3.11)$$

where D is a diagonal covariance matrix.

The study performs Cointegration methodology developed in Johansen (1991, 1995) using a group object or an estimated VAR object. Two types of cointegration tests are available – Engle-Granger's cointegration and Johansen's cointegration. While the Engle-Granger methodology is applicable on two variables, Johansen's cointegration can be applied on the series having more than two variables. Unlike the VAR, VDA and IRF models described above, Cointegration tests have been applied on the absolute series (which is of non-stationary nature) rather than the dlog series. We have applied VAR-based cointegration tests using the methodology developed in Johansen (1991, 1995) performed using a Group object or an estimated Var object.

Consider a VAR of order *p*:

$$y_t = A_1\, y_{t-1} + \ldots\ldots + A_p\, y_{t-p} + Bx_t + \in_t \qquad (3.12)$$

where y_t is a k-vector of non-stationary I(1) variables, x_t is a d-vector of deterministic variables, and $\in_t$ is a vector of innovations. We may rewrite this VAR as,

$$\Delta y_t = \prod y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + Bx_t + \in_t \qquad (3.13)$$

where:

$$\prod = \sum_{i=1}^{p} A_i - I \text{ , and}$$

$$\Gamma_i = -\sum_{j=i+1}^{p} A_j$$

Granger's representation theorem asserts that if the coefficient matrix $\prod$ has reduced rank $r < k$, then there exist $k \times r$ matrices α and β each with rank *r* such that $\prod = \alpha\beta'$ and $\beta' y_t$ is I(0). *r* is the number of cointegrating relations (the *cointegrating rank*) and each column of β is the cointegrating vector. As

explained below, the elements of α are known as the adjustment parameters in the VEC model. Johansen's method is to estimate the matrix from an unrestricted VAR and to test whether we can reject the restrictions implied by the reduced rank of $\prod$.

The trend assumption in the case of our series applied for cointegration is that the level data and the cointegrating equations have linear trends:

$$H^*(r): \prod y_{t-1} + Bx_t = \alpha(\beta' y_{t-1} + \rho_0 + \rho_1 t) + \alpha \perp \lambda_0 \tag{3.14}$$

Johansen (1995) identifies the part that belongs inside the error correction term by orthogonally projecting the exogenous terms onto the α space so that $\alpha_\perp$ is the null space of $\alpha'\alpha_\perp = 0$. We identify the part inside the error correction term by regressing the cointegrating relations $\beta' y_t$ on a constant (and linear trend).

To determine the number of cointegrating relations r conditional on the assumptions made about the trend, we can proceed sequentially from $r = 0$ to $r = k-1$ until we fail to reject.

The trace statistic for the null hypothesis of r cointegrating relations is computed as:

$$LR_{tr}(r/k) = -T \sum_{i=r+1}^{k} \log(1-\lambda_i) \quad k \tag{3.15}$$

where λ_t is the i -th largest eigenvalue of the $\prod$ matrix.

The maximum eigenvalue statistic is computed as –

$$LR_{\max}(r/r+1) = -T\log(1-\lambda_{r+1}) = LR_{tr}(r/k) - LR_{tr}(r+1/k) \tag{3.16}$$

for r =0,1,….. k -1

A vector error correction (VEC) model is a restricted VAR designed for use with non-stationary series that are known to be cointegrated. The VEC has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The cointegration

term is known as the *error correction* term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

To take the simplest possible example, consider a two variable system with one cointegrating equation and no lagged difference terms. The cointegrating equation is:

$$y_{2,\ t} = \beta y_{1,\ t} \tag{3.17}$$

The corresponding VEC model is:

$$\Delta y_{1,\ t} = \alpha_1 (y_{2,\ t-1} - \beta y_{1,\ t-1}) + \epsilon_{1,\ t}$$

$$\Delta y_{2,\ t} = \alpha_2 (y_{2,\ t-1} - \beta y_{1,\ t-1}) + \epsilon_{2,\ t} \tag{3.18}$$

In this simple model, the only right-hand side variable is the error correction term. In long run equilibrium, this term is zero. However, if y_1 and y_2 deviate from the long run equilibrium, the error correction term will be nonzero and each variable adjusts to partially restore the equilibrium relation. The coefficient α_1 measures the speed of adjustment of the i-th endogenous variable towards the equilibrium.

The following hypothesis are formulated while applying the statistical measures –

A. H_0 = dlog of sales, advertisement expenses, profits and firm value are normally distributed (Tested through Skewness, Kurtosis and Jarque-Bera).
B. H_0 = dlog of sales, advertisement expenses, profits and firm value are not correlated with each other (Tested through Coefficient of Correlation).

C. H_0 = dlog of sales, advertisement expenses, profits and firm value have a unit root (Tested through Augmented Dickey-Fuller Unit-root test).
D. H_0 = dlog of sales, advertisement expenses, profits and firm value are not impacted by each other (Tested through Vector Auto Regression and Variance Decomposition Analysis).

E. H_0 = There are no cointegrating equations between sales, advertisement expenses, profits and firm value (Jahensen's Cointegration Test).

The data is reported through graphical, mathematical and text tools as used in the various chapters/sections of the thesis.

CHAPTER FOUR

EMPIRICAL ANALYSIS

The chapter focuses on the empirical analysis with regard to the impact of advertisement expenditure on firm's performance in case of Indian FMCG industry. As mentioned in earlier chapters, the study regards sales, profitability and firm value as the measures of firm's performance. The empirical analysis is presented in four sections as under:

1. Impact of advertisement expenditure on sales and profitability;
2. Impact of advertisement expenditure on firm value;
3. Impact of sales and profitability on firm value; and
4. Managerial implications for marketers.

For the above-mentioned four heads, the study presents results obtained by applying various statistical tools and qualitative analysis.

4.1 Impact of advertisement expenditure on sales and profitability

The study firstly establishes the impact of advertisement expenditure on sales and profitability. In order to understand this impact, the study attempts to get insights into the three series through the descriptive statistics. This is followed by Johansen's cointegration analysis, which is performed on the raw series. The study further performs the Augmented Dickey-Fuller unit-root test on the dlog of the three series, in order to check stationarity of the series under reference. Afterwards, Vector Autoregression (VAR), Variance Decomposition Analysis (VDA) and Impulse Response Function (IRF) are applied on the dlog of the series. Finally, Vector Error Correction Model (VECM) is applied onto the raw series.

a) Descriptive statistics

The analysis of data starts with the computation of basic statistics for the three

series so as to get insights into the data. In the descriptive statistics, Mean, median, standard deviation and the variance of the series under reference is presented. These statistics for the Advertisement expenditure, Sales and Profitability are presented in table 4.1.

Table 4.1

Descriptive Statistics of Advertisement Expenditure, Sales and Profitability

	ADV	PAT	SALES
Mean	619.2266	591.0172	6662.252
Median	56.7	24.9	1217.4
Std. Dev.	2642.795	3674.305	25466.19
Skewness	9.254446	7.79152	7.610713
Kurtosis	106.0755	77.71447	67.00244
Coefficient of Variation	426.7896	621.6917	382.246
Jarque-Bera	411724.8	218683.3	162480.5
Probability of Jarque-Bera	0	0	0

The values in the above table for mean and median are computed in millions of dollars. The statistics of Advertisement Expenditure, Sales and Profitability over the study period reveal that the mean value of the Advertisements is 619.22 while the median is 56.7 (which is quite far from mean) which depicts that not the similar numbers of the value is found above and below the mean. A high value of standard deviation of 2642.795 shows that there was high volatility among the advertisement expenditure of the companies. This fact is also strengthened by a high value of Co-efficient of Variation (426.78). The Skewness statistics of 9.25 shows the series is positively skewed. The Kurtosis statistic of 106.07 infers that the observations of the Advertisement expenditure cluster less and have shorter tails, showing that the series is lepokurtic. The mean value in case of profit is 591.0172 and the median is 24.9 (which is quite far from mean) which depicts that not the similar number of values is found above and below the mean. A high value of standard deviation of 3674.3 shows high volatility among the Profitability of the companies which is again depicted by high value of coefficient

of variation having value of 621.6 .The Skewness of 7.7 shows that the series is positively skewed and further the results of kurtosis 77.7 shows the series is leptokurtic. Further moving towards statistics result the mean value of the sales is 666.2 whereas the median is 1217.4 which is quite far from mean shows no similar values are found are above and below the mean .A high value of standard deviation 25466.1 which is quite high Skewness of 7.6 and kurtosis of 67.0 showing series to be leptokurtic. The high standard deviation shows the sample companies are highly different in size. The Skewness of the three series shows the series to be positively skewed. High kurtosis for the three series implies that the series are non-normal and are leptokurtic. Coefficient of variation demonstrates the variation in respect of both the series while also taking the mean into account. Jarque-Bera statistic being lesser than 0.05 clearly implies that the series is non-normal.

b) Johansen's Cointegration

After getting insights into the given data we further move on to perform econometric analysis on the series. Johansen Cointegration is applied on raw data. The results are given in table 4.2.

Table 4.2

Unrestricted Cointegration Rank Test (Trace)

Series: ADV PAT SALES				
Lags interval (in first differences): 1 to 4				
Hypothesized	Eigenvalue	Trace	0.05	Prob.**
None *	0.124766	256.2667	29.79707	0.0001
At most 1 *	0.082581	136.8616	15.49471	0.0001
At most 2 *	0.064390	59.63438	3.841466	0.0000
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

In table 4.2, we compare the Trace statistic with the 0.05 critical value. In the all three rows that has the Null hypothesis of no cointegrating equation, the Trace statistic is more than the critical value. This coupled with the probability value of

less than 0.05, enables us to reject the Null hypothesis. This implies that there are three cointegrating equation at the 0.05 level. This conclusion is also confirmed by the Eigenvalue statistics presented in Table 4.3. Hence, we arrive at the observation that there are three cointegrating equation in the series.

Table 4.3

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Series: ADV PAT SALES				
Lags interval (in first differences): 1 to 4				
Hypothesized	Eigenvalue	Trace	0.05	Prob.**
None *	0.124766	119.4050	21.13162	0.0001
At most 1 *	0.082581	77.22726	14.26460	0.0001
At most 2 *	0.064390	59.63438	3.841466	0.0000
Max-eigenvalue test test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table 4.4

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I)

ADV	PAT	SALES
-0.000801	-0.001094	0.000210
-0.000364	0.000345	2.25E-05
0.000285	-0.000903	0.000124

Table 4.5

Unrestricted Adjustment Coefficients (alpha)

D(ADV)	438.5640	-134.5490	-185.1390
D(PAT)	462.4514	-478.4995	20.14814
D(SALES)	2674.919	-3089.174	-992.6981

Table 4.4 and 4.5 provide estimates of the cointegrating relations β and the adjustment parameters α. As is well known, the cointegrating vector β is not identified unless we impose some arbitrary normalization. Table 4.4 reports estimates of β and table 4.5 reports estimates of α based on the normalization β '*S_{11}* β =I, where S_{11} is defined in Johansen (1995). The *transpose* of β is reported under Unrestricted Cointegrating Coefficients so that the first *row* is the first cointegrating vector, the second row is the second cointegrating vector, and so on.

The unrestricted coefficient values are the estimated values of coefficients in the cointegrating vector, and these are presented in Table 4.4. However, it is useful to normalize the coefficient values to set the coefficient value on one of them to unity, as would be the case in the cointegrating regression under the Engle--Granger approach. The normalization has been done with respect to Advertisement (i.e. ADVERTISEMENT has been given a coefficient of 1 in the normalized cointegrating vector) in the first two equations and with respect to profit (i.e. PROFIT has been given a coefficient of 1 in the normalized cointegrating vector) in the case of third equation.

Table 4.6

Cointegrating Equations

1 Cointegrating Equation(s):		Log likelihood	-24132.15	
Normalized cointegrating coefficients (standard error in parentheses)				
ADV	PAT	SALES		
1.000000	1.365091	-0.261511		
	(0.15119)	(0.02130)		
Adjustment coefficients (standard error in parentheses)				
D(ADV)	-0.351486			
	(0.03911)			
D(PAT)	-0.370631			
	(0.05582)			
D(SALES)	-2.143809			
	(0.36312)			

2 Cointegrating Equation(s):		Log likelihood	-24093.53	
Normalized cointegrating coefficients (standard error in parentheses)				
ADV	PAT	SALES		
1.000000	0.000000	-0.143623		
		(0.00876)		
0.000000	1.000000	-0.086359		
		(0.00662)		
Adjustment coefficients (standard error in parentheses)				
D(ADV)	-0.302554	-0.526197		
	(0.04277)	(0.05574)		
D(PAT)	-0.196612	-0.670910		
	(0.05964)	(0.07773)		
D(SALES)	-1.020353	-3.991502		
	(0.38810)	(0.50584)		

Table 4.6 presents the adjustment coefficients, or loadings in each regression (i.e. the 'amount of the cointegrating vector' in each equation).

From table 4.6, we can construct the following cointegrating equations –

1. ***1.00 Advertisement + 1.36509 Profit -0.261511 Sales=0***
2. ***1.00 Advertisement* - 0.143623 Sales = 0**
3. ***1.00 Profit* - -0.086359 Sales =0**

c) Augmented Dickey-Fuller unit-root test

The unit-root test is performed on the dlog of advertisement expenditure, sales and profit series in order to test the null hypothesis that the series have a unit root. The findings of the unit-root test and the augmented Dickey-Fuller test are shown in table 4.7, 4.8 and 4.9.

Table 4.7

Augmented Dickey-Fuller unit-root test (dlog of advertisement expenditure)

Null Hypothesis: DADV has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=20)				
			z-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-34.61871	0.0000
Test critical values:	1% level		-3.437401	
	5% level		-2.864542	
	10% level		-2.568422	
*MacKinnon (1996) one-sided p-values.				

By the way of unit-root test, the null hypothesis that dlog of advertisement expenditure, sales and profit has a unit-root is tested. Probability value of less than 0.05 in table 4.7, 4.8 and 4.9 implies that the Null hypothesis is rejected and the variable does not have a unit-root, which confirms that the series are stationary. Hence, all the three dlog series happen to be stationary.

Table 4.8

Augmented Dickey-Fuller unit-root test (dlog of sales)

Null Hypothesis: DSALES has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=20)				
			z-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-31.81259	0.0000
Test critical values:	1% level		-3.437401	
	5% level		-2.864542	
	10% level		-2.568422	
*MacKinnon (1996) one-sided p-values.				

Table 4.9

Augmented Dickey-Fuller unit-root test (dlog of profit)

Null Hypothesis: DPAT has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=20)				
			z-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-31.55067	0.0000
Test critical values:	1% level		-3.437401	
	5% level		-2.864542	
	10% level		-2.568422	
*MacKinnon (1996) one-sided p-values.				

The study further performs the group unit-root tests for Advertisement, Sales, and Profit. The group unit root test involves the Levin, Lin & Chu test; Im, Pesaran and Shin W-stat; ADF-Fisher Chi-square and PP-Fisher Chi Square tests. The findings of the group unit root tests are presented in table 4.10.

Table 4.10

Group unit-root test

Series: DADV, DPAT, DSALES		
Exogenous variables: Individual effects		
Newey-West automatic bandwidth selection and Bartlett kernel		
Method	Statistic	Prob.
Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-70.6791	0.0000
Null: Unit root (assumes individual unit root process)		
Im, Pesaran and Shin W-stat	-67.3388	0.0000
ADF - Fisher Chi-square	537.193	0.0000
PP - Fisher Chi-square	425.835	0.0000

d) Vector Autoregression (VAR)

After the Unit Root Test, the study further applies unrestricted Vector Autoregressive (VAR) models in order to check the relationship between dlog of advertisement expenditure, sales and profits. The results of VAR model are

presented in table 4.11.

By application of the VAR Model, it is observed that the integration of one variable (i.e. Advertisement) with the other can be established if the t-statistic is more than 1.96 (irrespective of the sign). The integration of the one variable with the other is tested at the lag of 1 and 2. The dlog at lag 0 is taken in the columns while the dlog at all the variables at lag 1 and lag 2 are taken in the rows. For understanding the analysis produced by the Vector Auto-Regression, one needs to move column-wise.

Table 4.11

Vector Autoregression (VAR)

Standard errors in ( ) & Z-statistics in [ ]			
	DADV	DPAT	DSALES
DADV(-1)	-0.268697	-0.263807	-0.090807
	(0.04516)	(0.06817)	(0.02819)
	[-5.94995]	**[-3.86996]**	**[-3.22118]**
DADV(-2)	-0.073759	0.000248	0.053970
	(0.03760)	(0.05675)	(0.02347)
	[-1.96193]	[0.00437]	**[2.29967]**
DPAT(-1)	0.028202	-0.223539	0.024381
	(0.03086)	(0.04658)	(0.01926)
	[0.91393]	**[-4.79907]**	[1.26568]
DPAT(-2)	-0.021719	-0.042869	0.024814
	(0.02995)	(0.04522)	(0.01870)
	[-0.72506]	[-0.94810]	[1.32703]
DSALES(-1)	0.143899	0.688880	0.169063
	(0.09508)	(0.14353)	(0.05935)
	[1.51342]	**[4.79970]**	**[2.84835]**
DSALES(-2)	0.128867	0.169285	-0.018100
	(0.09790)	(0.14778)	(0.06111)
	[1.31630]	[1.14552]	[-0.29617]
C	0.164940	0.105314	0.117604
	(0.02981)	(0.04500)	(0.01861)
	[5.53233]	[2.34014]	[6.31898]

Taking the first column in table 4.11 – dlog of advertisement expenditure is influenced by the dlog of advertisement at lag 1 and 2. Dlog of profit is influenced by dlog of advertisement, profit and sales at lag 1. Dlog of sales is influenced by dlog of advertisement at lag of 1 and 2, and by dlog of sales at lag of 1. These values have been highlighted in table 4.11.

In this way, application of the VAR model leads us to the conclusion that the advertisement expenditure, sales and profit impact each other significantly.

e) Variance Decomposition Analysis

The Variance Decomposition Analysis of the dlog of advertisement expenditure, sales and profit, is presented in the table 4.12 to 4.14. The tables decomposes the variance in dlog of advertisement expenditure, sales and profit for a period ranging from 1 to 10.

Table 4.12

Variance Decomposition Analysis of dlog of advertisement expenditure

Period	S.E.	DADV	DPAT	DSALES
1	0.538438	100.0000	0.000000	0.000000
2	0.555019	99.00184	0.396549	0.601616
3	0.556647	98.42368	0.459900	1.116415
4	0.557039	98.34818	0.501457	1.150367
5	0.557040	98.34791	0.501727	1.150364
6	0.557049	98.34543	0.502300	1.152274
7	0.557049	98.34535	0.502357	1.152294
8	0.557050	98.34533	0.502366	1.152307
9	0.557050	98.34532	0.502368	1.152312
10	0.557050	98.34532	0.502368	1.152312

Taable 4.12 decomposes the variance of dlog of advertisement expenditure and reveals that by and large, the dlog of advertisement expenditure is composed by the dlog of advertisement expenditure for the previous years. However, it is evident that the dlog of sales leaves an impact on the dlog of advertisement, particularly at period 3 and beyond. This is in conformity with the results

produced by the Vector Auto-Regression (VAR) model, which found that the Sales influences the Advertisement.

Table 4.13

Variance Decomposition Analysis of dlog of sales

Period	S.E.	DADV	DPAT	DSALES
1	0.336118	14.28233	6.497962	79.21971
2	0.342460	14.25851	7.247617	78.49387
3	0.344742	15.10206	7.424660	77.47328
4	0.344786	15.09950	7.431111	77.46939
5	0.344811	15.09750	7.430257	77.47224
6	0.344813	15.09802	7.430767	77.47121
7	0.344813	15.09804	7.430806	77.47115
8	0.344813	15.09804	7.430806	77.47115
9	0.344813	15.09804	7.430807	77.47115
10	0.344813	15.09804	7.430807	77.47115

Table 4.13 decomposes the variance of dlog sales and reveals that the dlog of advertisement and dlog of profit leaves a visible impact on the dlog of sales at all the periods. This is in conformity with the results produced by the Vector Auto-Regression (VAR) model, which found that the sales are influenced by the advertisement expenditure.

Table 4.14

Variance Decomposition Analysis of dlog of profit

Period	S.E.	DADV	DPAT	DSALES
1	0.812765	2.601915	97.39809	0.000000
2	0.851209	3.342436	90.79575	5.861812
3	0.853428	3.674422	90.38610	5.939474
4	0.853924	3.690124	90.34972	5.960152
5	0.853980	3.691258	90.33966	5.969080
6	0.853983	3.691239	90.33901	5.969749
7	0.853985	3.691408	90.33876	5.969830
8	0.853985	3.691409	90.33876	5.969832
9	0.853985	3.691410	90.33875	5.969836
10	0.853985	3.691411	90.33875	5.969836

Taable 4.14 decomposes the variance of dlog of profit and reveals that by and large, the dlog of profit is composed by the previous Year levels/dlog at the same. However, it is evident that the dlog of advertisement leaves a visible impact on the dlog of profit, at all the periods. Table 4.14 also depicts that dlog of sales also impacts the dlog of profit significantly at period 2 and beyond. This is in conformity with the results produced by the Vector Auto-Regression (VAR) model, which found that the sales influence advertisement expenditure.

f) Impulse Response Function

Figure 4.1

Impulse Response Function (dlog of advertisement expenditure, sales and profits)

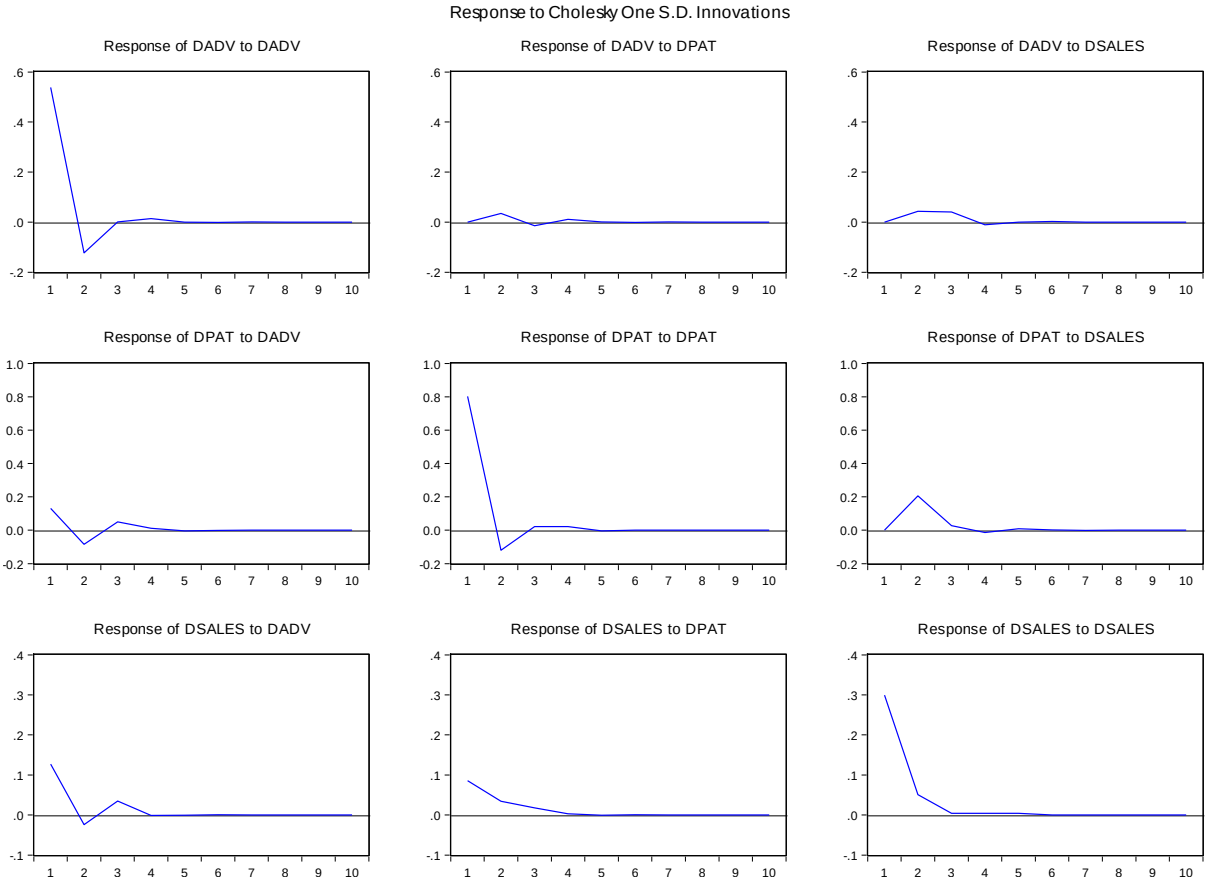


Figure 4.1 presents the findings of Impulse Response Function with regard to the dlog series of advertisement expenditure, sales and profits. The figure depicts the impulse response of the variables (i.e. dlog of advertisement expenditure, sales and profit) on each other. Figure 4.1 shows the number of years on x-axis and the shock-response on y-axis. The figure exhibits in about how many years the shock at the other variable cools down.

g) Vector Error Correction Model (VECM)

In order to further explain the cointegrating equations, the application of Vector Error Correction Model (VECM) is employed. Restrictions concerning the cointegrating relationships embodied in β are denoted by $B(i,j)$, where $B(i,j)$ represents the j th coefficient in the i th cointegrating relationship.

The results of the Vector Error Correction Model are summarized below in Table 4.15. Table 4.15 also presents the VECM estimates of the cointegrating equation.

Table 4.15

Vector Error Correction Estimates

Cointegrating Eq:	CointEq1		
ADV(-1)	1.000000		
PAT(-1)	0.976398		
	(0.20419)		
	[4.78186]		
SALES(-1)	-0.169164		
	(0.02896)		
	[-5.84159]		
C	-69.62622		
Error Correction:	D(ADV)	D(PAT)	D(SALES)
CointEq1	-0.286769	-0.363773	-2.498913
	(0.02848)	(0.03978)	(0.25677)
	[-10.0691]	[-9.14441]	[-9.73205]
D(ADV(-1))	0.058812	0.124837	1.020688
	(0.06179)	(0.08630)	(0.55707)
	[0.95184]	[1.44647]	[1.83226]

D(ADV(-2))	0.023222	0.064841	1.091550
	(0.06112)	(0.08537)	(0.55104)
	[0.37994]	[0.75951]	**[1.98088]**
D(PAT(-1))	0.183401	-0.034528	0.973730
	(0.07369)	(0.10293)	(0.66440)
	[2.48872]	[-0.33543]	[1.46557]
D(PAT(-2))	-0.202137	-0.573221	-1.770737
	(0.07307)	(0.10206)	(0.65875)
	[-2.76651]	**[-5.61661]**	**[-2.68803]**
D(SALES(-1))	-0.031483	-0.008036	-0.256422
	(0.01423)	(0.01988)	(0.12833)
	[-2.21185]	[-0.40418]	**[-1.99815]**
D(SALES(-2))	0.042659	0.085484	0.230918
	(0.01414)	(0.01976)	(0.12751)
	[3.01618]	**[4.32713]**	[1.81093]
C	0.121950	0.158175	0.628931
	(49.4524)	(69.0752)	(445.855)
	[0.00247]	[0.00229]	[0.00141]

The purpose of the VECM is to focus on the short run dynamics while making them consistent with long run solution. If a number of variables are found to be cointegrated with at least one cointegrating vector, then there always exists a corresponding error-correction representation which implies that changes in dependent variable can be formulated as a function of the level disequilibrium in the cointregration relationship and fluctuations in other explanatory variables. The table above depicts the long term relationship between advertisement expenditure, sales and profits at lag 1 and 2, hence depicting cointegration among advertisement expenditure, sales and profitability.

4.2 Impact of advertisement expenditure on firm value

This section of the attempts to establish the impact of advertisement expenditure on firm value. The previous section has already presented the descriptive statistics for the advertisement expenditure. Hence, this section presents the descriptive statistics of the proxy ‘Q’ for firm value. This is followed by Johansen’s

cointegration analysis, which is performed on the two raw series. The study further performs the Augmented Dickey-Fuller unit-root test on the dlog of firm value, in order to check stationarity of the same. The stationarity of dlog of advertisement expenditure has already been checked in the previous section. Afterwards, Vector Autoregression (VAR), Variance Decomposition Analysis (VDA) and Impulse Response Function (IRF) are applied on the dlog of the series. Finally, Vector Error Correction Model (VECM) is applied onto the raw series.

a) Descriptive statistics

In the descriptive statistics, Mean, median, standard deviation and the variance of the series under reference is presented. These statistics for the Advertisement expenditure have already been discussed in section 4.1. Table 4.16 only presents the descriptive statistics in respect of the proxy 'Q' for firm value. It may be recalled here that for the purpose of the study, the firm value is approximated as per the simplified version of approximated 'Q' as suggested by *Chung and Pruitt (1994)*, which seems simpler and more objective as compared to the original 'Q' as given by Tobin –

$$\text{Approximated Tobin's q} = \frac{Market\ Value\ of\ Equity + Book\ Value\ of\ Debt}{Book\ Value\ of\ Total\ Assets}$$

Table 4.16

Descriptive Statistics of Firm Value (Approximated by Tobin's Q)

Statistic	Firm Value (Approximated Tobin's Q)
Mean	1.827
Median	1.150
Std. Dev.	2.94
Skewness	11.4211
Kurtosis	187.4888
Coefficient of Variation	160.9195
Probability of Jarque-Bera	0.00000

The statistics of Firm Value over the study period reveal that the mean value of the firm value is 1.827 while the median is 1.150 (which is quite far from mean) which depicts that not the similar numbers of the value is found above and below the mean. A high value of standard deviation of 2.94 shows that there was high variability among the firm value of the companies. This fact is also strengthened by a high value of Co-efficient of Variation (160.92). The Skewness statistics of 11.42 shows the series is positively skewed. The Kurtosis statistic of 187.48 infers that the observations of the firm value cluster less and have shorter tails, showing that the series is lepokurtic.

b) Johansen's Cointegration

The study further performs econometric analysis on the series. Johansen Cointegration is applied on raw data .The results are given in table 4.17 below:

Table 4.17

Unrestricted Cointegration Rank Test (Trace)

Series: ADV FV			Lags interval (in first differences): 1 to 4	
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.105042	169.1551	15.49471	0.0001
At most 1 *	0.076038	70.38476	3.841466	0.0000
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

In table 4.17, we compare the Trace statistic with the 0.05 critical value. In the both rows that has the Null hypothesis of no cointegrating equation, the Trace statistic is more than the critical value. This coupled with the probability value of less than 0.05, enables us to reject the Null hypothesis.

Table 4.18

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Series: ADV FV			Lags interval (in first differences): 1 to 4	
Lags interval (in first differences): 1 to 4				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.105042	98.77038	14.26460	0.0000
At most 1 *	0.076038	70.38476	3.841466	0.0000
Max-eigenvalue test test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

This implies that there are two cointegrating equation at the 0.05 level. This conclusion is also confirmed by the Eigenvalue statistics presented in Table 4.18. Hence, we arrive at the observation that there are two cointegrating equation in the series.

Table 4.19

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I)

ADV	FV
-0.000232	0.452290
0.000416	0.085498

Table 4.20

Unrestricted Adjustment Coefficients (alpha)

D(ADV)	152.6446	-411.5120
D(FV)	-0.628271	-0.248000

Table 4.19 and 4.20 provide estimates of the cointegrating relations β and the adjustment parameters α. As is well known, the cointegrating vector β is not identified unless we impose some arbitrary normalization. Table 4.19 reports estimates of β and table 4.20 reports estimates of α based on the normalization β

'*S_{11}* β =I, where S_{11} is defined in Johansen (1995). The *transpose* of β is reported under Unrestricted Cointegrating Coefficients so that the first *row* is the first cointegrating vector, the second row is the second cointegrating vector, and so on.

The unrestricted coefficient values are the estimated values of coefficients in the cointegrating vector, and these are presented in Table 4.19. However, it is useful to normalize the coefficient values to set the coefficient value on one of them to unity, as would be the case in the cointegrating regression under the Engle--Granger approach. The normalization has been done with respect to ADVERTISEMENT (i.e. ADVERTISEMENT has been given a coefficient of 1 in the normalized cointegrating vector).

Table 4.21 presents the adjustment coefficients, or loadings in each regression (i.e. the 'amount of the cointegrating vector' in each equation).

Table 4.21

Cointegrating Equations

1 Cointegrating Equation(s):	Log	-9691.255	
Normalized cointegrating coefficients (standard error in parentheses)			
ADV	FV		
1.000000	-1946.133		
	(184.852)		
Adjustment coefficients (standard error in parentheses)			
D(ADV)	-0.035475		
	(0.01220)		
D(FV)	0.000146		
	(1.6E-05)		

From table 4.21, we can construct the following cointegrating equation –

1.00 Advertisement – 1946.13 Firm Market Value = 0

c) Augmented Dickey-Fuller unit-root test

The unit-root test on dlog of advertisement expenditure has already been applied

and discussed in section 4.1. Table 4.22 discusses the findings of the unit-root test and the augmented Dickey-Fuller test on dlog of firm value.

Table 4.22

Augmented Dickey-Fuller unit-root test (dlog of firm value)

Null Hypothesis: DFV has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=20)				
			z-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-23.80219	0.0000
Test critical values:	-3.437475		-3.437401	
	-2.864574		-2.864542	
	-2.568439		-2.568422	
*MacKinnon (1996) one-sided p-values.				

By the way of unit-root test, the null hypothesis that dlog of firm value has a unit-root is tested. Probability value of less than 0.05 in table 4.22 implies that the Null hypothesis is rejected and the variable does not have a unit-root, which confirms that the series are stationary. Hence, all the dlog of firm value series happen to be stationary.

d) Vector Autoregression (VAR)

After the Unit Root Test, the study further applies unrestricted Vector Autoregressive (VAR) models in order to check the relationship between dlog of advertisement expenditure and firm value. The results of VAR model are presented in table 4.23.

Taking the first column in table 4.23 – dlog of Advertisement expenditure is influenced by the dlog of advertisement expenditure at lag 1 and lag 2. Conversely, dlog of firm value is influenced by dlog of advertisement expenditure at lag 1 and by dlog of firm value at lag 1 and 2. In this way, application of the VAR model leads us to the conclusion that the advertisement expenditure impacts firm value.

Table 4.23

Vector Autoregression (VAR)

	DADV	DFV
DADV(-1)	-0.157438	0.042053
	(0.03354)	(0.01623)
	[-4.69444]	**[2.59056]**
DADV(-2)	-0.066257	-0.006790
	(0.03364)	(0.01628)
	[-1.96988]	[-0.41705]
DFV(-1)	0.106758	-0.086841
	(0.06899)	(0.03339)
	[1.54748]	**[-2.60058]**
DFV(-2)	0.096039	-0.128317
	(0.07589)	(0.03673)
	[1.26548]	**[-3.49310]**
C	0.106614	-0.005964
	(0.02972)	(0.01439)
	[3.58709]	[-0.41454]

e) Variance Decomposition Analysis

Further, the Variance Decomposition Analysis of Advertisement expenditure and Firm Value is presented in the table 4.24. The table decomposes the variance of advertisement expenditure and firm value for the period ranging from 1 to 10. Table 4.24 decomposes the variance of dlog of Advertisement expenditure and reveals that by and large, dlog of advertisement expenditure is composed by the previous Year values of the same series. However, it is evident that the dlog of Firm Value does not have any impact on the advertisement at any period. This is in conformity with the results produced by the Vector Auto-Regression (VAR) model, which found that the Firm Value does not influence advertisement expenditure.

Table 4.24

Variance Decomposition Analysis of dlog of advertisement expenditure

Period	S.E.	DADV	DFV
1	0.876349	100.0000	0.000000
2	0.887971	99.74048	0.259524
3	0.889008	99.62989	0.370110
4	0.889294	99.59588	0.404125
5	0.889302	99.59471	0.405288
6	0.889308	99.59357	0.406431
7	0.889308	99.59357	0.406430
8	0.889308	99.59355	0.406450
9	0.889308	99.59355	0.406450
10	0.889308	99.59355	0.406450

However, the results from table 4.25 are not in conformity with the results from VAR. Table 4.25 shows that advertisement expenditure has little impact on firm value.

Table 4.25

Variance Decomposition Analysis of dlog of firm value

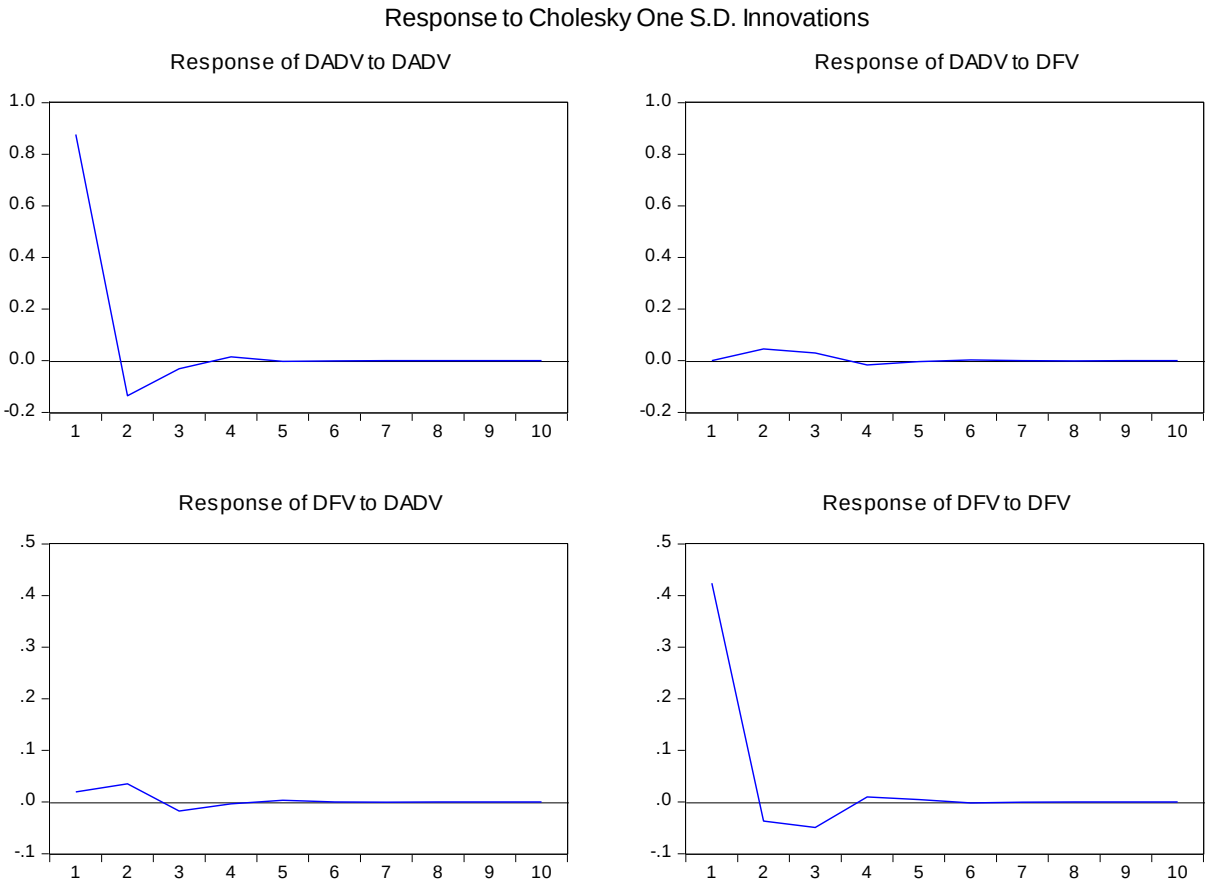
Period	S.E.	DADV	DFV
1	0.424187	0.215752	99.78425
2	0.427228	0.889307	99.11069
3	0.430406	1.036740	98.96326
4	0.430534	1.042338	98.95766
5	0.430571	1.048271	98.95173
6	0.430575	1.048257	98.95174
7	0.430575	1.048358	98.95164
8	0.430575	1.048361	98.95164
9	0.430575	1.048361	98.95164
10	0.430575	1.048362	98.95164

f) Impulse Response Function

Figure 4.2 presents the findings of Impulse Response Function with regard to the dlog series of advertisement expenditure and firm value. The figure depicts the impulse response of the Variables (i.e. dlog of advertisement expenditure and firm value) on each other. Figure 4.2 shows the number of years on x-axis and the shock-response on y-axis. The figure exhibits in about how many years the shock at the other variable cools down.

Figure 4.2

Impulse Response Function (dlog of advertisement expenditure and firm value)



g) Vector Error Correction Model (VECM)

In order to further explain the cointegrating equations, the application of Vector

Error Correction Model (VECM) is employed. Restrictions concerning the cointegrating relationships embodied in β are denoted by $B(i,j)$, where $B(i,j)$ represents the j th coefficient in the i th cointegrating relationship.

The results of the Vector Error Correction Model are summarized below in Table 4.26. Table 4.26 also presents the VECM estimates of the cointegrating equation.

Table 4.26

Vector Error Correction Estimates

Cointegrating Eq:	CointEq1	
ADV(-1)	1.000000	
FV(-1)	-914.6234	
	(103.565)	
	[-8.83137]	
C	1050.257	
Error Correction:	D(ADV)	D(FV)
CointEq1	-0.134599	0.000157
	(0.01831)	(2.5E-05)
	[-7.35091]	[6.28540]
D(ADV(-1))	-0.022286	-9.60E-05
	(0.03422)	(4.7E-05)
	[-0.65128]	[-2.06056]
D(ADV(-2))	0.109298	1.74E-05
	(0.03380)	(4.6E-05)
	[3.23377]	[0.37795]
D(FV(-1))	-56.91428	-0.053636
	(25.4523)	(0.03464)
	[-2.23611]	[-1.54829]
D(FV(-2))	-68.74724	-0.163220
	(24.8827)	(0.03387)
	[-2.76286]	**[-4.81951]**
C	0.065408	-0.002740
	(51.6969)	(0.07036)
	[0.00127]	[-0.03894]

The purpose of the VECM is to focus on the short run dynamics while making them consistent with long run solution. If a number of variables are found to be cointegrated with at least one cointegrating vector, then there always exists a corresponding error-correction representation, which implies that changes in dependent variable can be formulated as a function of the level disequilibrium in the cointregration relationship and fluctuations in other explanatory variables. The table above depicts the long term relationship between advertisement expenditure and Firm value at lag 1 and 2 hence depicting cointegration among advertisement expenditure and Firm Value.

4.3 Impact of sales and profitability on firm value

After analysing the impact of advertisement expenditure on sales and profitability of firms, and that of advertisement expenditure on firm value; the study proceeds to study the impact of sales and profitability on firm value. This section does not present the descriptive statistics of the variables covered in the section, i.e., sales, profitability and firm value. This is due to the fact that while the descriptive statistics of sales and profitability have already been presented in section 4.1 of this chapter, section 4.2 of the chapter has already presented the descriptive statistics with regard to the firm value. On the similar lines, the Augmented Dickey-Fuller unit-root test has been applied on dlog of sales and profits in section 4.1, while the same has been applied onto the dlog of firm value in section 4.2 of the chapter. The application of Augmented Dickey-Fuller unit-root test shows that the dlog of the three series is stationary in nature. This section applies Johansen's cointegration analysis, which is performed on the raw series. The section further performs the Vector Autoregression (VAR), Variance Decomposition Analysis (VDA) and Impulse Response Function (IRF) applied on the dlog of the three series. Finally, Vector Error Correction Model (VECM) is applied onto the raw series.

a) Johansen's Cointegration

The results of Johansen's cointegration are shown in table 4.27 below:

Table 4.27

Unrestricted Cointegration Rank Test (Trace)

Series: FV PAT SALES				
Lags interval (in first differences): 1 to 4				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.109186	248.1546	29.79707	0.0001
At most 1 *	0.092492	145.2533	15.49471	0.0001
At most 2 *	0.064013	58.87664	3.841466	0.0000
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table 4.27 compares the Trace statistic with the 0.05 critical value. In all the three rows that has the Null hypothesis of no cointegrating equation, the Trace statistic is more than the critical value. This coupled with the probability value of less than 0.05, enables us to reject the Null hypothesis.

Table 4.28

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Series: FV PAT SALES				
Lags interval (in first differences): 1 to 4				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.109186	102.9013	21.13162	0.0001
At most 1 *	0.092492	86.37668	14.26460	0.0000
At most 2 *	0.064013	58.87664	3.841466	0.0000
Max-eigenvalue test test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

This implies that there are three cointegrating equation at the 0.05 level. This conclusion is also confirmed by the Eigenvalue statistics presented in Table 4.28. Hence, we arrive at the observation that there are three cointegrating equation in the series.

Table 4.29 and 4.30 provide estimates of the cointegrating relations β and the adjustment parameters α. As is well known, the cointegrating vector β is not identified unless we impose some arbitrary normalization. Table 4.29 reports estimates of β and table 4.30 reports estimates of α based on the normalization β '*S_{11}* β =I, where S_{11} is defined in Johansen (1995). The *transpose* of β is reported under Unrestricted Cointegrating Coefficients so that the first *row* is the first cointegrating vector, the second row is the second cointegrating vector, and so on.

Table 4.29

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I)

FV	PAT	SALES
0.385866	0.000718	-9.82E-05
0.224837	-0.000706	5.94E-05
-0.088559	0.000913	-0.000155

Table 4.30

Unrestricted Adjustment Coefficients (alpha)

D(FV)	-0.657855	-0.192286	0.085852
D(PAT)	-286.4692	595.3687	50.09206
D(SALES)	-1433.380	3636.356	1421.404

The unrestricted coefficient values are the estimated values of coefficients in the cointegrating vector, and these are presented in Table 4.30. However, it is useful to normalize the coefficient values to set the coefficient value on one of them to unity, as would be the case in the cointegrating regression under the Engle-

Granger approach. The normalization has been done with respect to firm value (i.e. firm value has been given a coefficient of 1 in the normalized cointegrating vector) in the first two equations and with respect to profit (i.e. profit has been given a coefficient of 1 in the normalized cointegrating vector) in the case of third equation.

Table 4.31 presents the adjustment coefficients, or loadings in each regression (i.e. the 'amount of the cointegrating vector' in each equation), are also given in this table.

From table 4.31, we can construct the following cointegrating equations –

1. ***1.00 Firm value + 0.001861 Profit - 0.000254 Sales=0***
2. ***1.00 Firm value - 0.00000614 Sales = 0***
3. ***1.00 Profit - 0.103678 Sales =0***

Table 4.31

Cointegrating Equations

1 Cointegrating Equation(s):		Log likelihood	-18714.80	
Normalized cointegrating coefficients (standard error in parentheses)				
ADV	PAT	SALES		
1.000000	1.365091	-0.261511		
	(0.15119)	(0.02130)		
Adjustment coefficients (standard error in parentheses)				
D(ADV)	-0.351486			
	(0.03911)			
D(PAT)	-0.370631			
	(0.05582)			
D(SALES)	-2.143809			
	(0.36312)			

2 Cointegrating Equation(s):		Log likelihood	-24093.53	
Normalized cointegrating coefficients (standard error in parentheses)				
ADV	PAT	SALES		
1.000000	0.000000	-0.143623		
		(0.00876)		
0.000000	1.000000	-0.086359		
		(0.00662)		
Adjustment coefficients (standard error in parentheses)				
D(ADV)	-0.302554	-0.526197		
	(0.04277)	(0.05574)		
D(PAT)	-0.196612	-0.670910		
	(0.05964)	(0.07773)		
D(SALES)	-1.020353	-3.991502		
	(0.38810)	(0.50584)		

Vector Autoregression (VAR)

The study further applies unrestricted Vector Autoregressive (VAR) models in order to check the relationship between dlog of sales, profits and firm value. The results of VAR model are presented in table 4.32. By application of the VAR Model, it is observed that the integration of one variable (i.e. Advertisement) with the other can be established if the t-statistic is more than 1.96 (irrespective of the sign). The integration of the one variable with the other is tested at the lag of 1 and 2. The dlog at lag 0 is taken in the columns while the dlog at all the variables at lag 1 and lag 2 are taken in the rows. For understanding the analysis produced by the Vector Auto-Regression, one needs to move column-wise.

Table 4.32

Vector Autoregression (VAR)

Standard errors in ( ) & Z-statistics in [ ]			
	DFV	DPAT	DSALES
DFV(-1)	-0.102985	-0.010811	0.039012
	(0.04511)	(0.08240)	(0.03400)
	[-2.28288]	[-0.13121]	[1.14738]
DFV(-2)	-0.064363	-0.039528	-0.002852
	(0.05086)	(0.09291)	(0.03834)
	[-1.26538]	[-0.42546]	[-0.07439]
DPAT(-1)	0.039242	-0.231322	0.011370
	(0.02610)	(0.04767)	(0.01967)
	[1.50370]	**[-4.85275]**	[0.57805]
DPAT(-2)	0.026319	-0.036920	0.021561
	(0.02542)	(0.04643)	(0.01916)
	[1.03538]	[-0.79519]	[1.12540]
DSALES(-1)	-0.037898	0.455947	0.074799
	(0.07268)	(0.13276)	(0.05478)
	[-0.52142]	**[3.43443]**	[1.36543]
DSALES(-2)	-0.073058	0.245697	0.064568
	(0.07678)	(0.14024)	(0.05787)
	[-0.95154]	[1.75196]	[1.11576]
C	0.006424	0.088519	0.113378
	(0.02505)	(0.04575)	(0.01888)
	[0.25645]	[1.93466]	[6.00521]

Taking the first column in table 4.32 – dlog of firm value is influenced by dlog of firm value at lag 1. Dlog of profit at lag 1 is influenced by dlog of profit and dlog of sales at lag 1. Dlog of sales is not found to be influenced by any of the variables at any lag.

A study of the VAR model leads us to the conclusion that the firm value is not influenced by sales or profit.

b) Variance Decomposition Analysis

The Variance Decomposition Analysis of the dlog of firm value, sales and profit, is presented in the table 4.33 to 4.35. The tables decomposes the variance in dlog of firm value, sales and profit for a period ranging from 1 to 10.

Table 4.33

Variance Decomposition Analysis of dlog of firm value

Period	S.E.	DADV	DPAT	DSALES
1	0.452527	100.0000	0.000000	0.000000
2	0.455265	99.56607	0.362047	0.071880
3	0.456221	99.41336	0.369204	0.217434
4	0.456313	99.37563	0.389782	0.234588
5	0.456315	99.37563	0.389780	0.234586
6	0.456316	99.37516	0.390007	0.234833
7	0.456316	99.37515	0.390021	0.234834
8	0.456316	99.37514	0.390022	0.234834
9	0.456316	99.37514	0.390022	0.234834
10	0.456316	99.37514	0.390022	0.234834

Table 4.33 decomposes the variance of dlog of firm value and reveals that by and large, the variance of dlog of firm value is composed by the previous Year levels at the same. However, it is evident that the return at sales and profit leaves no impact on the return at the firm value, at any period.

Table 4.34 decomposes the variance of dlog of Profit and reveals that the dlog of sales and dllog of firm value leaves an impact on the dlog of Profit, though the impact of sales is seen at Period 2 and beyond.

Table 4.34

Variance Decomposition Analysis of dlog of profit

Period	S.E.	DADV	DPAT	DSALES
1	0.826567	4.937532	95.06247	0.000000
2	0.851425	4.899760	92.12550	2.974736
3	0.854076	4.870129	91.73935	3.390520
4	0.854213	4.883115	91.72732	3.389569
5	0.854251	4.882766	91.72008	3.397155
6	0.854252	4.882758	91.71988	3.397358
7	0.854252	4.882760	91.71983	3.397410
8	0.854253	4.882760	91.71982	3.397416
9	0.854253	4.882760	91.71982	3.397417
10	0.854253	4.882760	91.71982	3.397417

Table 4.35

Variance Decomposition Analysis of dlog of sales

Period	S.E.	DADV	DPAT	DSALES
1	0.341071	0.108436	10.72049	89.17108
2	0.342987	0.467341	10.86184	88.67082
3	0.344762	0.469618	11.29412	88.23626
4	0.344824	0.469481	11.29039	88.24013
5	0.344850	0.469539	11.29329	88.23717
6	0.344851	0.469601	11.29342	88.23698
7	0.344852	0.469600	11.29346	88.23694
8	0.344852	0.469600	11.29346	88.23694
9	0.344852	0.469600	11.29346	88.23694
10	0.344852	0.469600	11.29346	88.23694

Table 4.35 decomposes the variance of dlog of Sales and reveals that dlog of profit leaves a visible impact on the return at the Sales, at all periods.

c) Impulse Response Function

Figure 4.3

Impulse Response Function (dlog of sales, profits and firm value)

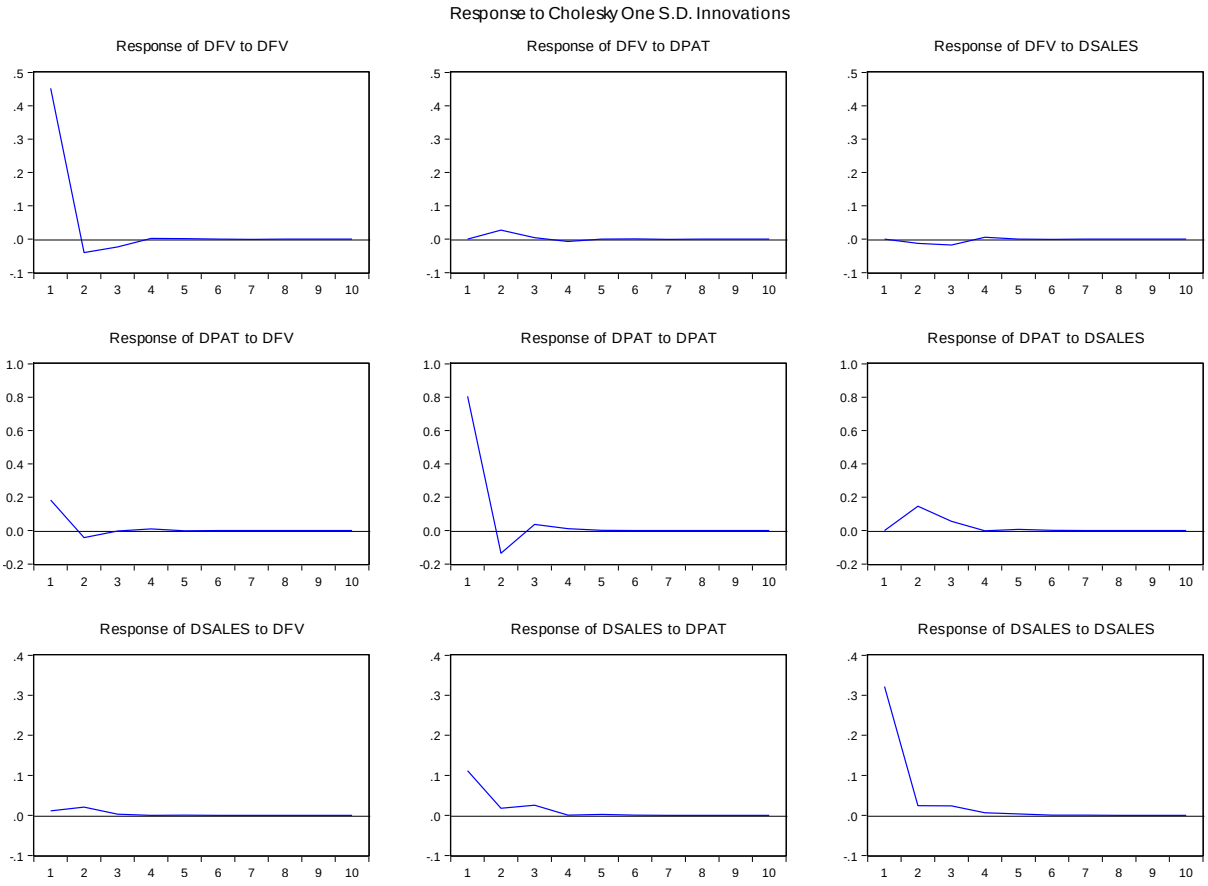


Figure 4.3 presents the findings of Impulse Response Function with regard to the dlog series of sales, profits and firm value.

Figure 4.3 depicts the impulse response of the variables (i.e. dlog of sales, profit and firm value) on each other. Figure 4.3 shows the number of years on x-axis and the shock-response on y-axis. The figure exhibits in about how many years the shock at the other variable cools down.

d) Vector Error Correction Model (VECM)

In order to further explain the cointegrating equations, the application of Vector

Error Correction Model (VECM) is employed. Restrictions concerning the cointegrating relationships embodied in β are denoted by $B(i,j)$, where $B(i,j)$ represents the j th coefficient in the i th cointegrating relationship.

Table 4.36

Vector Error Correction Estimates

Cointegrating Eq:	CointEq1		
FV(-1)	1.000000		
PAT(-1)	0.001857		
	(0.00034)		
	[5.53055]		
SALES(-1)	-0.000286		
	(4.8E-05)		
	[-6.00928]		
C	-1.014481		
Error Correction:	D(FV)	D(PAT)	D(SALES)
CointEq1	-0.229306	-43.65129	-48.08349
	(0.02394)	(25.5606)	(165.922)
	[-9.57931]	[-1.70776]	[-0.28980]
D(FV(-1))	-0.015723	48.99449	164.3374
	(0.03356)	(35.8352)	(232.618)
	[-0.46851]	[1.36722]	[0.70647]
D(FV(-2))	-0.122170	24.59217	1.190588
	(0.03284)	(35.0703)	(227.653)
	[-3.71976]	[0.70122]	[0.00523]
D(PAT(-1))	0.000407	-0.192139	-0.474014
	(9.7E-05)	(0.10405)	(0.67544)
	[4.17201]	[-1.84654]	[-0.70178]
D(PAT(-2))	-6.73E-05	-0.700130	-3.110973
	(9.7E-05)	(0.10318)	(0.66975)
	[-0.69692]	**[-6.78582]**	**[-4.64501]**
D(SALES(-1))	-6.53E-05	0.016326	-0.017237
	(1.5E-05)	(0.01630)	(0.10584)
	[-4.27770]	[1.00133]	[-0.16286]

D(SALES(-2))	1.67E-05	0.101945	0.477654
	(1.5E-05)	(0.01618)	(0.10505)
	[1.09910]	**[6.29932]**	**[4.54684]**
C	-0.002758	0.236739	1.175934
	(0.06802)	(72.6324)	(471.481)
	[-0.04055]	[0.00326]	[0.00249]

The results of the Vector Error Correction Model are summarized in Table 4.36. Table 4.36 also presents the VECM estimates of the cointegrating equation.

The purpose of the VECM is to focus on the short run dynamics while making them consistent with long run solution. If a number of variables are found to be cointegrated with at least one cointegrating vector, then there always exists a corresponding error-correction representation, which implies that changes in dependent variable can be formulated as a function of the level disequilibrium in the cointregration relationship and fluctuations in other explanatory variables. Table 4.36 above depicts the long term relationship between sales and profitability at lag 1, hence depicting cointegration among advertisement expenditure, sales and profitability.

In a nutshell, the hypothesis developed in Chapter 1 of this report are accepted/ rejected as under –

Hypothesis 1: Advertisement expenditure has positive impact on firm value – various models as applied in the study indicate at a visible impact of advertisement expenditure on firm value. Therefore, hypothesis 1 is accepted;

Hypothesis 2: Advertisement expenditure has positive impact on sales revenue and profitability of the firm – application of the models lead us to infer that advertisement expenditure impacts sales revenue and profitability leading to acceptance of the hypothesis 2; and

Hypothesis 3: Sales Revenue and Profitability has positive impact on market value of firm – a long-run relationship is indicated through Johansen's Cointegration Analysis and Vector Error Correction Model, which implies hypothesis 3 to be accepted.

4.4 Managerial implications for marketers

For long, the issue of advertisement expenses being a waste has been debated by the managers, corporate professionals and researchers. The study addresses this critical issue. The results as discussed in sections 4.1 through 4.3 above are not similar across different econometric models. However, most of the models lead to the conclusion that advertisement expenses leave a visible direct impact on the firm value. Besides, the study also finds out that the advertisement expenses also impact firm value indirectly. This indirect impact is observed through the impact of advertisement expenses on sales and profits, and further the impact of sales and profits on firm value. In the light of the debate raging over the efficacy of advertisement expenses, this is a significant indication.

Contradicting the findings of *Beckwith (1972), Hamilton (1972), Aaker et al (1982), Bass and Pilon (1980), Hanssens (1980), Jagpal (1981), Leone (1983), Baltagi and Levin (1986), Tschoel and Yu (1991), Kwoka (1993), Andras and Srinivasan (2003), Sharma and Sharma (2009),* this research indicates towards a need for corporates to increase their advertising expenses in order to attain higher sales, profits and firm value. The findings of the study support the conclusions drawn by *Leong et al (1996), Leach and Reekie (1996), Metwally (1997), Elliot (2001), Pagan et al (2001), Kamber (2002), Yiannaka et al (2002), Ouyang et al (2002), Zhou et al (2003), Pauwels et al (2004), Esteve and Requena (2006), Agyapong et al (2011), Banerjee et al (2012).* Hence, the study finds that advertising is a critical tool with the marketers since it has a significant impact on firm performance, i.e., sales, profitability and firm value.

These results repudiate the belief of advertisement expenses being a waste. This is a significant strategic input for the managers since they can bank on the tool of

advertisement in order to push their sales, profits and firm value. However, this in no way conveys that every kind of advertisement will lead to a rise in sales and profits. The managers need to evaluate various advertisement appeals in order to zero-in on the most-suitable appeal that addresses the potential consumer group. The impact of competitive advertisement on own firm valuation is highlighted. Marketers need to be aware of advertisement campaigns by firms of similar sizes since those have a potential to effect own firm value via stock price. Marketers can bank on the tool of advertisement in order to push their sales, profits and firm value. It also gives an indication to the marketers that advertisement has double impact on firm value through the direct and indirect routes. This provides strong justification for investment in advertisement. On the other hand, the study demonstrates that advertisement may have an investor impact even if there is no tangible consumer impact. This implies that marketers should be aware of total impact of advertisement spending, not only the near-term sales and profits impact. Finally, the study highlights the importance of keeping advertisement expenditure close to optimum while also observing that the market penalizes firms for significant deviations (in both directions) from optimal advertisement spending.

CHAPTER 5

SUMMARY AND CONCLUSION

The detailed findings of the study have been given wherever the study arrived at those in the preceding chapters. However, for the purpose of broad understanding of the findings and in order to arrive at a conclusion regarding those, it is essential to present the major and more significant findings in this chapter. The chapter also gives a summary of the implications stemming from the study for the marketers. The chapter contains five parts. Part one of the chapter presents a summary of the research methodology followed in the study. The second part summarizes the major findings of the study. Implications for the marketers are contained in the third part of the chapter. The fourth part presents the limitations of the study. The scope for future research is presented in the fifth part of the chapter.

5.1 Summary of the Research methodology

The prime aim of the study was to explore the impact of advertisement expenditure on firm's performance. For measuring the firm performance, the study uses variables in the form of sales, profits and firm value. The study focuses on the FMCG industry.

The study attempts to carry out the under-mentioned objectives–

- To study the impact of Advertisement on the market value of the firm.
- To observe whether increase in advertisement expenditure leads to increase in sales revenue and profitability.
- To study the impact of sales revenue and profitability on the market value of the firm
- To suggest the implications for marketers from the firm value effect of advertisement.

The present study attempts to test the following hypotheses for studying the impact as such.

Hypothesis 1: Advertisement expenditure has a positive impact on firm value.

Hypothesis 2: Advertisement expenditure has a positive impact on sales revenue and profitability of the firm.

Hypothesis 3: Sales Revenue and Profitability has a positive impact on market value of firm.

The research uses one hundred Bombay Stock Exchange (BSE)-listed companies from the FMCG industry. The companies are selected on random basis. The sample period for the study is 10 years ranging from 2001–2002 to 2010–2011.

The data for sample companies have been collected from the annual reports of the respective companies. Wherever necessary, CMIE Prowess database has also been used for data collection purposes. While the data for advertisement expenditure, sales and profits are taken from the sources as mentioned above, the computations have been done with regard to the firm value. Ratio *Q* developed by James Tobin of Yale University, Nobel laureate in economics, has been extensively used as a proxy for firm value. *Tobin (1969)* hypothesizes that the combined market value of all the companies on the stock market should be about equal to their replacement costs.

By definition, *Q* the ratio between the market value of the firm's assets and the replacement value of those assets calculated as follows:

$$\text{Q Ratio} = \frac{\text{Total Market Value of Firm}}{\text{Total Asset Value}}$$

A number of improvised models of 'Q' have been developed by the researchers after Tobin giving the 'Q' ratio. These include L-R algorithm and many other

improvised methods. To make Q a more useable research construct, the study uses approximate Q as suggested by *Chung and Pruitt (1994)*, using readily available accounting data, as given below –

$$\text{Approximate Q} = \frac{(MVE+PS+Debt)}{TA}$$

where, MVE is the market value of the firm's equity;

PS is the liquidating value of the preferred stock;

DEBT is the book value of the short-term liabilities minus its short-term assets plus the book value of long-term debt; and

TA represents the book value of the firm's total assets.

Approximate Q has been widely used in diverse areas of financial study, including capital structure, firm performance, industrial diversification, earnings management, pollution reduction, and strategic competition.

The study uses descriptive statistics and econometric tools for analyzing the data. In the descriptive statistics, the study presents Mean, Median, Standard Deviation, Skewness, Kurtosis, Coefficient of variation and Jarque-bera statistic.

Most of the econometric analysis can only be performed on a series of stationary nature. In order to check whether or not the series are stationary, line graphs are prepared for each of the series. In order to further confirm the (stationary) nature of the series, the study performs the Augmented Dickey-Fuller test under the unit-root test to finally confirm whether or not the series are stationary.

The study further performs Vector Autoregression (VAR), Variance Decomposition Analysis and Impulse Response Function in order to meet the research objectives. These models are advisable to be applied on the stationary series. Therefore, the study applies these models on the dlog of the series.

The study performs Cointegration methodology developed in Johansen (1991, 1995) using a group object or an estimated VAR object. Two types of cointegration tests are available – Engle-Granger's cointegration and Johansen's cointegration. While the Engle-Granger methodology is applicable on two variables, Johansen's cointegration can be applied on the series having more than two variables. Unlike the VAR, VDA and IRF models described above, Cointegration tests have been applied on the absolute series (which is of non-stationary nature) rather than the dlog series. We have applied VAR-based cointegration tests using the methodology developed in Johansen (1991, 1995) performed using a Group object or an estimated Var object.

Finally, the study applies Vector Error Correction Model on the data. A vector error correction (VEC) model is a restricted VAR designed for use with non-stationary series that are known to be cointegrated. The VEC has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The cointegration term is known as the *error correction* term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

5.2 Summary of the Findings

The statistics of Advertisement Expenditure, Sales and Profitability over the study period reveal that the mean value of the Advertisements is 619.22 million rupees while the median is 56.7 million rupees (which is quite far from mean) which depicts that not the similar numbers of the value is found above and below the mean. A high value of standard deviation of 2642.795 shows that there was high volatility among the advertisement expenditure of the companies. This fact is also strengthened by a high value of Co-efficient of Variation (426.78). The Skewness statistics of 9.25 shows the series is positively skewed. The Kurtosis statistic of 106.07 infers that the observations of the Advertisement expenditure cluster less and have shorter tails, showing that the series is lepokurtic. The mean value in case of profit is 591.0172 million rupees and the median is 24.9 million rupees

(which is quite far from mean) which depicts that not the similar number of values is found above and below the mean. A high value of standard deviation of 3674.3 shows high volatility among the Profitability of the companies which is again depicted by high value of coefficient of variation having value of 621.6 .The Skewness of 7.7 shows that the series is positively skewed and further the results of kurtosis 77.7 shows the series is leptokurtic. Further, the mean value of the sales is 666.2 million rupees whereas the median is 1217.4 million rupees, which is quite far from mean shows no similar values are found are above and below the mean. A high value of standard deviation 25466.1 which is quite high Skewness of 7.6 and kurtosis of 67.0 showing series to be leptokurtic. The high standard deviation shows the sample companies are highly different in size. The Skewness of the three series shows the series to be positively skewed. High kurtosis for the three series implies that the series are non-normal and are leptokurtic. Coefficient of variation demonstrates the variation in respect of both the series while also taking the mean into account. The statistics of Firm Value over the study period reveal that the mean value of the firm value is 1.827 while the median is 1.150 (which is quite far from mean) which depicts that not the similar numbers of the value is found above and below the mean. A high value of standard deviation of 2.94 shows that there was high variability among the firm value of the companies. This fact is also strengthened by a high value of Co-efficient of Variation (160.92). The Skewness statistics of 11.42 shows the series is positively skewed. The Kurtosis statistic of 187.48 infers that the observations of the firm value cluster less and have shorter tails, showing that the series is lepokurtic. Jarque-Bera statistic being lesser than 0.05 for all the series clearly implies that the series is non-normal.

Application of Johansen's cointegration on advertisement expenditure, sales and profitability shows three cointegrating equations among these three variables. Two cointegrating equations are found among advertisement expenditure and firm value. Similarly, Johansen's cointegration finds three cointegrating equations among sales, profits and firm value.

Augmented Dickey-fuller unit-root test shows the dlog series in respect of

advertisement expenditure, sales, profits and firm value to be stationary in nature.

The application of Vector Autoregression model on advertisement expenditure, sales and profit shows that the three impact each other significantly. Similarly, the study also observes that the advertisement expenditure impacts firm value. Conversely, the study of the VAR model reveals that the firm value is not influenced by sales or profit.

The results from Variance Decomposition Analysis shows that sales influence advertisement expenditure. However, the application of VDA on advertisement expenditure and firm value fails to offer similar results as disclosed by the VAR model. VDA shows that advertisement expenditure has little impact on firm value. Similarly, the application of this model observes that the return at sales and profit leaves no impact on the return at the firm value, at any period. However, sales and firm value leaves an impact on the profit, though the impact of sales is seen at Period 2 and beyond. Finally, the model describes that there is a visible impact of profit on sales in the next periods.

The study finally applies the Vector Error Correction Model (VECM) on the variables under study. The model depicts the long term relationship between advertisement expenditure, sales and profits at lag 1 and 2, hence depicting cointegration among advertisement expenditure, sales and profitability. The model further observes the long term relationship between advertisement expenditure and firm value at lag 1 and 2 hence depicting cointegration among advertisement expenditure and firm Value. Similarly, VECM finds the long term relationship between sales and profitability at lag 1, hence depicting cointegration among advertisement expenditure, sales and profitability.

In a nutshell, the hypothesis developed in Section 5.1 above are accepted/ rejected as under –

Hypothesis 1: Advertisement expenditure has positive impact on firm value – various models as applied in the study indicate at a visible impact of advertisement expenditure on firm value. Therefore, hypothesis 1 is accepted;

Hypothesis 2: Advertisement expenditure has positive impact on sales revenue and profitability of the firm – application of the models lead us to infer that advertisement expenditure impacts sales revenue and profitability leading to acceptance of the hypothesis 2; and

Hypothesis 3: Sales Revenue and Profitability has positive impact on market value of firm – a long-run relationship is indicated through Johansen's Cointegration Analysis and Vector Error Correction Model, which implies hypothesis 3 to be accepted.

5.3 Summary of the implications for marketers

For long, the issue of advertisement expenses being a waste has been debated by the managers, corporate professionals and researchers. The study addresses this critical issue. The results as discussed in sections 5.2 above are not similar across different econometric models. However, most of the models lead to the conclusion that advertisement expenses leave a visible direct impact on the firm value. Besides, the study also finds out that the advertisement expenses also impact firm value indirectly. This indirect impact is observed through the impact of advertisement expenses on sales and profits, and further the impact of sales and profits on firm value. In the light of the debate raging over the efficacy of advertisement expenses, this is a significant indication.

These results repudiate the belief of advertisement expenses being a waste. This is a significant strategic input for the managers since they can bank on the tool of advertisement in order to push their sales, profits and firm value. However, this in no way conveys that every kind of advertisement will lead to a rise in sales and profits. The managers need to evaluate various advertisement appeals in order to zero-in on the most-suitable appeal that addresses the potential consumer group. The impact of competitive advertisement on own firm valuation is highlighted. Marketers need to be aware of advertisement campaigns by firms of similar sizes since those have a potential to effect own firm value via stock price. Marketers can bank on the tool of advertisement in order to push their sales, profits and firm

value. It also gives an indication to the marketers that advertisement has double impact on firm value through the direct and indirect routes. This provides strong justification for investment in advertisement. On the other hand, the study demonstrates that advertisement may have an investor impact even if there is no tangible consumer impact. This implies that marketers should be aware of total impact of advertisement spending, not only the near-term sales and profits impact. Finally, the study highlights the importance of keeping advertisement expenditure close to optimum while also observing that the market penalizes firms for significant deviations (in both directions) from optimal advertisement spending.

5.4 Limitations of the Study

India remains the focus area of the study. The study could not be extended to include other countries because of the data availability constraints. While CMIE Prowess database helped extract the data for Indian companies, the data with regard to the annual financial statements of the companies across the world could not be made available for the study.

Moreover, due to the time constraints, the study could not include all the industries in India. However, the study did choose the industry that best suits its objectives. FMCG industry is one in which on one hand, the advertisement expenditure is high; and on the other hand, the data for both sales in volumes and sales in rupees are available. Besides, the industry has witnessed high growth rates in the recent past. Choosing FMCG industry as the sample for the study on the basis of these factors helped minimize the sampling limitations. Having stated this, there is no denying the fact that focusing only on one industry is a limitation of the study.

Further, this research studies the impact of advertisement expenditure on firm's performance. Not including the other elements of marketing than just advertisement expenditure may be considered as another limitation of the study.

Most of the limitations mentioned above could be done away with, had there been no resource constraints. However, since the study was not a funded project, there were resource constraints, which emerged as another limitation of the study.

Having mentioned the limitations of the study as above, it must also be stated that all the relevant econometric models have been used in the study. This ensures that there is no analytical limitation in the study.

5.5 Scope for further Research

On the basis of the limitations of this research as mentioned in section 5.4 above, the scope for further research can be worked out. Further studies may be conducted in order to remove the limitations of this research as outlined in section 5.4.

Researchers may attempt to expand this study by comparatively analyzing the impact of advertisement expenditure on firm's performance across various industries in India. On the similar lines, researchers may also compare and analyze such impact across different countries. Besides, scholars may also like to include more predicting variables than just advertisement expenditure. While maintaining that the current study uses sales, profits and firm value as the measures of firm's performance, it may be advisable to the scholars to include more measures of firm's performance in their respective studies.

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