IMPACT OF CSR ACTIVITIES ON PROFITABILITY AND GROWTH OF INDIAN PHARMACEUTICAL COMPANIES: AN EMPIRICAL EXAMINATION

Abhay Jain[1] .

This study examines the relationship of corporate social responsibility activities to profitability and growth of Indian pharmaceutical companies after controlling the effect of other variables. Based on secondary data, CSR activities score of 108 pharmaceutical companies operating in India have been analysed by applying content analysis of annual reports and websites of the individual companies for the year 2011-12. For profitability, growth and other control variables, the data have been collected for the last five years from 2007-08 to 2011-12 from prowess developed by Centre for Monitoring Indian Economy (CMIE). To extract the results, statistical test like factor analysis and multiple regression analysis have been used with the help of SPSS software. The results indicate that CSR has significant impact on profitability and growth specifying certain implications for policy makers and managers of pharmaceutical companies who have to take decisions regarding the investment in CSR.

Key words: Corporate Social Responsibility, Profitability, Growth and Pharmaceutical Companies.

1. INTRODUCTION

In order to sustain in the market for a long period of time, the business enterprises now have shifted their goal from profit maximisation to wealth maximisation. They have realised that it would not be sufficient to sustain their existence in the market on the basis of profit maximisation as a sole objective. Since the decisions taken by the management are likely to affect not only the stockholders but also the other stakeholders, namely, creditors, employees and the society at large, the enterprises are now paying continuous attention to contribute and protect the social interests of the people in the society termed as Corporate Social Responsibility (CSR).

While assessing the relationship between CSR and Corporate Financial Performance (CFP) in the literature, we have confronted with conflicting results showing positive, negative and no effect or relationship of CSR and CFP. Most of the studies have been

---

[1] Assistant Professor, Shri Ram College of Commerce, Delhi

conducted by taking all the sector into consideration but a few studies are available in the literature that concentrate on the specific sector with respect to assess the CSR and CFP relationship. In the present study, we have considered Indian Pharmaceutical Industry for our study in assessing the CSR impact on CFP.

Overview of Indian Pharmaceutical Industry

The Indian Pharmaceutical Industry today has emerged in the first rank of India's science-based industries with wide ranging capabilities in the complex field of drug manufacture and technology. It has been ranked very high in the third world, in terms of technology, quality and range of medicines manufactured. With the vision of playing a key role in promoting and sustaining development in vital filed of medicines, it boasts of quality producers and many units have been approved by reputed regulatory authorities in USA and UK. During the past few years, the pharmaceutical industry has shown phenomenal spurt in sales and has reached US$ 10.04 billion in size in July 2010. McKinsey & Company has assessed that Indian Pharmaceutical Industry has been growing at a pace of 8 to 9 percent annually and has been considered as the fastest growing industry in India. Following the de-licensing of the pharmaceutical industry, industrial licensing for most of the drugs and pharmaceutical products has been done away with. The manufactures of the drugs are free to produce any drug subject to the approval of the Drug Control Authority. Technologically strong, low cost of production, totally self-reliant, low R&D costs, strength of innovative national laboratories, scientific manpower, and so on are some of the key features of this industry that has made it progressive and vibrant. These notations have attracted our intention to conduct a study on Indian Pharmaceutical Industry with regard to assess the relationship of CSR and CFP.

2.   REVIEW OF LITERATURE

Previous studies have shown mixed results on relationship between CSR and financial performance. Some of the popular studies have been explained as follows:

Branco (2006) focussed on whether Portuguese banks use their web sites for disclosing their social responsibility information. They had focused the study on two areas; firstly, Banks which had more branches were disclosing more social responsibility information than the others with fewer branches. Secondly, banks listed on stock exchange were to be considered as more socially responsible as compared to unlisted one. The results showed a positive relationship between social responsibility disclosures by greater number of branches banks as well as listed banks.

Mahoney and Roberts (2007) showed the relationship of corporate social performance on financial performance as well as on institutional ownership. The results showed significant relationship between firms CSP towards environmental and international activities and FP. As well as they found a positive impact of firms CSP ratings regarding their international activities.

Lin et al. (2008) According to this study CSR and Financial performance showed positive relationship as they took a sample of 1000 Taiwanese cases in which various firms emphasised on contributing towards research and development, as well as their contribution towards charitable expenditures as their prominent activity to CSR and positive impact on financial performance.

Kapoor and Sandhu(2010) did an empirical examination to know the impact of CSR on FP. They found a positive as well as significant impact of CSR on profitability. They proved that if proper attention is given to CSR areas they lead to competitive advantage by enhancing firm's profitability. However, CSR had shown insignificant impact on the growth may be due to the influence of some other factors like product quality, marketing strategy etc. They further supported the view that the benefits of being engaged in CSR are more than the costs involved.

Khan (2010). The purpose of the study was to find out the CSR reporting information of listed commercial banks. They also considered the effect of corporate governance on CSR disclosures. For corporate governance they focused on three segments such as non-executive directors, existence of foreign nationalities and women representation in the board. The findings showed that the CSR reporting by Bangladeshi banks was moderate. But for corporate governance results showed insignificant relationship between the women representation in the board while non-executive directors and existence of foreign nationalities found the significant impact on the CSR reporting.

Becchetti et al. (2011) study emphasised on the status of the market after the entry and exit from the Domini400 Social Index. This social index is to be recognized as a CSR benchmark. They took sample of 278 events of entries or exits from Domini400. The findings showed that when an exit announcement had been made by Domini index the abnormal returns showed negative effect.

3. OBJECTIVE OF THE STUDY

The study attempts to examine the impact of Corporate Social Responsibility Activities

on Corporate Financial Performance by controlling other variables viz. age, leverage, Research and Development, size and skill.

4.   METHODOLOGY

The study has been focused on top 108 companies in pharmaceutical industry. The data have been compiled for the period of five years (2007-2008 to 2011 to 2012) with the help of prowess, the electronic database of Centre for Monitoring Indian Economy (CMIE). Initially, we selected a set of 400 pharmaceutical companies based on their five years' (2007-08 to 2011 to 2012) average sales but due to the non availability of the reporting of CSR for the year 2011-12 either in their annual report or on websites, we were unable to consider these companies in our analysis and left with only 108 companies performing well on the basis of their sales. The top companies have been selected on the contention based on literature where it has been argued that big organisations are more likely to undertake more social activities than smaller companies (Krishna, 1992). The study is based on secondary data where annual reports of the companies from respective companies websites, stock broker's websites and Prowess, Centre for Monitoring Indian Economy (CMIE) electronic database for collecting information about CSR, CFP and other controlling variables. Some of the companies in the sample are maintaining their annual accounts at the end of December and these results have been considered according to December.

Measuring Instrument of Corporate Social Responsibility

For the present study, a CSR Measurement Instrument based on existing literature was developed describing the 23 items under eight dimensions viz. New Product and Handling Consumer's complaint, Environmental Contribution, Rural Development, Community Involvement, Human Resources, Women care, Diversity and Sports (see Appendix 1) for collecting information regarding involvement of companies in CSR activities. Afterwards, the content analysis of annual reports and individual websites is applied to measure the CSR score. The companies involved in one activity have been provided one if disclosed and zero if not (Ernst and Ernst, 1978; Abbott and Monsen, 1979). A sheet has been prepared depicting the number of activities in CSR provided by each company and computed by adding the score of each company. Then CSR score was measured in term of CSR score in percentage of total number of items covered in measurement instrument, the formula used as follows:

$$CSR\ Score\ of\ Company\ (in\ percentage) = \frac{Number\ of\ CSR\ items\ adopted\ by\ a\ company}{Total\ number\ of\ items\ in\ CSR\ measurement\ instrument} \times 100$$

Financial performance has been measured by taking Return on Sales (ROS), Return of Assets (ROA), Return of Equity (ROE), Growth in Sales (GSALES) and Growth in Total Net Assets (GTNA) in terms of profitability and growth of the companies covered under the study (Kapoor and Sandhu 2010; Griffin and Mahon 1997; Singh 1997; Moore 2001; Ruf et al. 2001; Ruso and Fouts 1997; Mahoney 2007; Lin et al. 2008; Simpson and Kohers 2002; Waddock and Graves 1997; Tsoutsoura 2004). ROS, ROA and ROE represent the profitability variables whereas GSALES and GTNA have been describing growth variables.

Based on the previous studies (Hamilton and Shergil 1993; Salinger 1984, Ruf et al. 2001; Singh 1997; Tsoutsoura 2004 and Kapoor & Sandhu 2010), the other variables, viz. age, leverage, R&D, Size and Skill have been included in the model as control variables which may be responsible for the fluctuations in the financial performance of the companies. The profitability variables and growth variables have been computed on the basis of formulas described in Appendix 2. Average for two years of all the financial performance variables have also been computed to use them in the formulas.

Techniques Used

Since the organisation performance can be viewed from different perspectives by stockholders and stakeholders, it become imperative to have condense picture of the analysis, and for that factor analysis with reference to Hamilton and Shergil (1993), Soch and Sandhu (2008) and Kapoor and Sandhu (2010) was applied to extract the composite index of performance. In order to find the appropriateness of the factor analysis, firstly the data was subject to the assumption of normality. All the variables of the study met the normality assumption. Secondly, overall measures of inter-correlation were observed where correlations, anti-correlations, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) and Bartlett Test of Sphericity were used. If visual inspection reveals no substantial number of correlations greater than 0.30, then factor analysis is probably inappropriate and if 'true' factors exist in the data, the partial correlation should be small, because the variable can be explained by the variables loading on the factor (Hair et al. 2009).

Table 1

Pearson's Correlations among Variables

Variables	ROS	ROA	ROE	GSALES	GTNA
ROS	1.00				
ROA	0.702**	1.00			
ROE	0.481*	0.563*	1.00		
GSALES	0.320*	0.221	0.327*	1.00	
GTNA	0.251**	0.512**	0.358	0.494**	1.00

Source: Calculated from data
*singficant at the 0.05 level (1-tailed)
** significant at the 0.01 level (1-tailed)

Visual inspection of the correlation (see Table 1) revealed that there is substantial number of correlation greater than .30 indicating move ahead for factor analysis. KMO Measure of Sampling Adequacy measure the magnitude of observed correlation coefficient to the magnitude of partial correlation coefficient and is observed from the diagonal elements of anti-image correlation matrix where the value greater than 0.5 is desirable (Malhotra, 2008, p. 642) and the variables falling in the unacceptable range (below 0.50) were excluded. The variables ROS, ROA, ROE, GSALES and GTNA were found to have value greater than 0.5. Bartlett Test of Sphericity signifies the overall presence of correlations among at least some of the variables. The test value of Bartlett's Test of Sphericity was found significant (approx. $.^2 = 241.104$, df 10, p = .000). Hence all the assumptions indicated the appropriateness of the data to proceed for factor analysis. Principal Component Analysis with varimax rotation was employed for extracting the factors based on Latent Root Criterion (i.e. Eigen value > 1) for the number of factors to be extracted. An eigen value representing the amount of variance associated with the factor is the most commonly used criterion for deciding how many factors to retain in factor reduction (Bryant & Yarnold, 1998; Cattell, 1966; Stevens, 1996). Eigen values of two extracted factors were 2.908 and 1.252 (see Table 2). Items having loading of 0.50 or greater have been considered to be significant and no cross-loading problem was identified. In all, the indicator for present solution accounted for 83.202 percent of total variations representing 16.798 percent of information content was lost in order to have 2 underlying factors. The Cronbach's value 0.776 indicated that all the factors in the study have adequate reliability. After obtaining the rotated component matrix (see Table 2), in which all variables have a significant loading on a factor, an attempt was made to assign some meaning to the pattern of factor loading. Variables with higher loadings are considered to be having more importance and have influencing role in determining the

name of the represented factor that is intuitively developed based on its appropriateness for representing the underlying dimension of a particular factor. The first factor comprised of ROS, ROA and ROE variables represented the profitability variables, therefore, named as 'profitability' while second factor with GSALES and GTNA based on measures of 'growth' had been named as 'growth' factor.

Table 2
Rotated Component Matrix

Variables	Factor 1	Factor 2
ROS	0.884	-0.021
ROA	0.893	0.136
ROE	0.873	0.030
GSALES	0.011	0.794
GTNA	0.352	0.732
Eigen Value	2.908	1.252
% of Variance	58.106	25.096
Cumulative % of variance	83.202	
Cronbach's alpha = 0.776, KMO = 0.666, Bartlett's Test of Sphericity= 241.104, df=10, sig. at .000		

As the citation Rummel, 1970 cited in Kapoor and Sandhu, 2010 described a vector of factor scores for the two factors profitability and growth, it has also been calculated in this study as Profitability = F.Z and Growth= F.Z where F is the factor score coefficient matrix (see Table 3) and Z is the vector of standardised values of the five performance variables which have been factor analyzed.

Table 3
Component Score Coefficient Matrix

Variables	Component	
	1	2
ROS	.340	-.034
ROA	.342	.011
ROE	.335	.007
GSALE	-.010	.633
GTNA	.009	-.629

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

e.g. the growth and profitability of company 1 is calculated as follows:

$$\text{Profit} = (0.340)Z_1 + (0.342)Z_2 + (0.335)Z_3 + (-0.010)Z_4 + (0.009)Z_5$$
$$\text{Growth} = (-0.034)Z_1 + (0.011)Z_2 + (0.007)Z_3 + (0.633)Z_4 + (-0.629)Z_5$$

where Z_1, Z_2, Z_3, Z_4 and Z_5 represents the standardised value of variables ROS, ROA, ROE, GSALES and GTNA respectively. Also, Z has been calculated as (ROS of company 1 minus the average of ROS of all the companies) divided by standard deviation of average ROS for all companies. Following the same pattern, Z_2 to Z_5 has been calculated for profitability and growth variables.

Subsequently these two extracted variables have been used as measures of profitability and growth and taken as dependent variables.

Multiple linear regression analysis has been used to examine the impact of CSR on profitability construct, growth construct, age, leverage, R&D, Size and Skill. The following multiple regression model has been applied as:

CFP (profitability or growth) = a + ß_1(CSR) + ß_2 (age) + ß_3(leverage) + ß_4(R&D) + ß_5(Size) + ß_6(Skill) + ε

Where a is the constant term, ß_1, ß_2... ß_n are the coefficients of independent variables and ε is the error term in the model. In order to check the permissibility of the regression model, normality has been taken care of by examining normal probability plots and linearity is examined though the analysis of partial regression plots (Hair et. al 2010). The variables viz. Skill, size, R&D and leverage has been transformed in their logarithms to obtain a near to perfect normal distribution and improve the linearity of the variables to make the regression model more adequate. The existence of multicollinearity among the independent variables was checked by computing the average variance inflation factor (VIF). Multicollinearity or colinearity is the situation where two or more independent variables are highly correlated and can adversely affect the results of multiple regression. As a rule of thumb, VIF less than 10 indicates the absence of multicollinearity among the independent variables. Moreover, the Durbin- Watson statistic was used to test the assumption of independent errors (autocorrelation). As per decision rule, the value of this statistic between 2 or close to 2 is considered as better as there is no first order auto-correlation either positive or negative (Gujarati, 2006, p.469).

Additionally, normal probability plot of regression standardized residual was tested to analyze the normality of data.

5. ANALYSIS AND DISCUSSION

Two multiple regression models, firstly, taking profitability and secondly growth have been taken and regressed on independent variables. The results have been revealed in Table 4.

Table 4
Results of Regression Analysis

Independent and Control Variables	Dependent Variables	
	Profitability	Growth
CSR	0.332(2.031)***	0.024(1.638)**
Age	-0.073(-0.163)	0.133(0.433)
Leverage	-0.318(1.963)**	0.252(0.492)
R&D	-0.421(-2.721)*	0.579(5.372)**
Size	0.016(1.076)	0.125(0.102)
Skill	-0.086(-0.529)	-0.351(-3.954)*
Adjusted R^2	0.324	0.447
F Statistics	11.385***	2.163***
Source: Author's own calculations Notes: Sample Size 108 Standardized beta scores have been specified. Figures in parentheses are t-values, *significant at 10 percent, **significant at 5 percent and ***significant at 1 percent level of significance.		

F statistics for both the models are highly significant at 1 percent level of significance indicating the models are adequate and appropriate. Profitability model explains 11.38 percent variation occurring due to combined effect of CSR and other control variable whereas growth model explains 2.163 percent variation due to these combined effects.

Profitability and growth model discloses highly significant (p<0.01) positive impact on CSR on corporate profitability. It may be said that positive impact may support the idea that the benefits of involving in CSR activities are more that the cost associated. Moreover, companies may achieve competitive advantage by more involvement in CSR activities.

The impact to age on both the models was found to be insignificant specifying that failing to use the latest technology may be neutralized by the benefits enjoyed by the organisation over the period of time. Leverage has been found to have significant (p<0.05) negatively association with profitability and found consistent with Kapoor and Sandhu (2010) specifying that the interest has to be paid on the debt raised which is debited against profit.

Research and Development has been found significant (p<.10) negative impact on profitability indicating the huge investment involved in research and development activities resulting into lowering the profits. Since R&D activities lead to innovation and improvement in product or service quality which has positive and significant impact on growth of an organisation. The firm's size has found insignificant relationship with both profitability and growth. It may be due to the increase in size of the firms resulting into increase in transaction costs in accomplishing activities which offset the economies of scale resulting into a balance between the size of firm and its financial performance.

The study reveals significant (p<0.10) negative association between skill and growth. This may be due to the fact that higher expenditure on skilled and non-skilled may not be resulting into profitable that may be expected and require the management to modify the ineffective personnel policies.

6.   CONCLUSION AND IMPLICATIONS

The present study has been an attempt to describe the impact of corporate social responsibility on financial performance especially on pharmaceutical companies. The top 108 pharmaceutical companies have been selected based on their average sales taken from secondary sources like Prowess-electronic database and annual reports of five consecutive years (2007-08 and 2011-12). The CSR activities are enlisted from the annual reports of the companies and CSR percentage score has been calculated on the basis of companies involved in different CSR activities divided by total number of CSR activities in an index. The impact of CSR and other control variables were regressed on profitability and growth by using multiple linear regression. The result revealed that CSR has positive significant impact on the profitability and growth of pharmaceutical companies. It indicates that involvement in CSR activities generate profitability and growth for the concerns and provide competitive advantage over the other non-CSR companies.

The concerns that are heavily involved in R&D activities have been found negative impact on profitability as the R&D expenditure has been decreasing the profitability of the concern up to a great extent. But it has been seen positive impact on growth as involvement of innovation in research and development activities and helps the organisation to sustain in the market for a long. So policy makers must keep this factor into their mind that continuous innovation in product or services has become the need of the hour to sustain in the competitive market. The pharmaceutical companies must be particular about maintaining their capital structure i.e. debt-equity mix as they required

to monitor their debt structure regularly to maintain their return on capital employed. Moreover, they also need to emphasize and monitor their personnel policy so that the employees can work effectively and efficiently to their full abilities.

Limitations

The foremost limitation of the study is in itself the limited sample that has been taken for pharmaceutical sector in India. The results may not be generalized the entire pharmaceutical industry. Secondly, CSR activities may be understated or overstated based on the content analysis of various annual reports. It may lead to biased results. Lastly, the study has been confined to annual reports in measuring financial performance, the results may have been different if based on market figures and provide more reliable results.

REFERENCES

Abbott, W.F. and Monsen, J.R. (1979). On the Measurement of Corporate Social Responsibility: Self Reported Disclosure as a Method of Measuring Corporate Social Involvement. *Academy of Management Journal*, 22(3):501-15.

Branco.C.M, and Rodrigues.L.L (2006). Communication of corporate social responsibility by Portuguese Banks. *Corporate Communication An International Journal*, Vol.11(3),232-248.

Becchetti.L,Ciciretti.R,Hasan.I and Kobeissi.N. (2011). Corporate social responsibility and shareholder's value. *Journal of Business Research* Doi:10.1016/j.jbusres.2011.10.022

Ernst and Ernst (1978). Social Responsibility Disclosure, 1978 Survey, Ohio: Cleveland.

Griffin, J.J. and. Mahon, J.F. (1997). The Corporate Social Performance and Corporate Financial Performance Debate: Twenty-Five Years of Incomparable Research. *Business and Society*, 36(1): 5–31.

Gujarati, D.N. (2006). Basic Econometrics, New Delhi:Tata McGraw-Hill.

Hamilton, R.T. and G.S. Shergill. (1993). The Logic of NewZealand Business. Auckland: Oxford University Press.

Kapoor,S. and Sandhu, H.S. (2010). Does it pay to be socially responsible? An Empirical Examination of Impact of CSR on Financial performance. *Global Business Review*, http://gbr.sagepub.com/content/11/2/185.

Khan.H.M. (2010). The effect of corporate governance elements on corporate social responsibility (CSR) reporting. Empirical evidence from private commercial banks of Bangladesh. *International Journal of Law and Management*, Vol52(2):82-109.

Lin.H.C,Yang.L.H, & Liou.Y.D. (2008). The Impact of Corporate Social Responsibility on financial performance: Evidence from Business in Taiwan. *Technology in Society Journal*, 31:56-63.

Mahoney.L, & Roberts.W.R (2007). Corporate social performance, Financial performance and Institutional ownership in Canadian Firms. *Science Direct Journal* 31: 233-253.

Moore,G (2001). Corporate Social and Financial Performance: An Investigation in the U.K. Supermarket Industry. *Journal of Business Ethnics*.34(3/4):299-315.

Ruf et al. (2001). An Empirical Investigation of the relationship between Change in Corporate Social Performance and Financial Performance: A stakeholder Theory Perspective. *Journal of Business Ethnics*,32(2):143-56.

Ruso and Fouts (1997). A resource-based Perspective on Corporate Environmental Performance and Profitability. *Academy of Management Journal*,40(3):534-59.

Salinger (1984). Tobin's Q,Unionization and Concentration-Profits Relationship. *journal of Economics*,15(6):159-70.

Simpson and Kohers (2002). The Link Between Social and Financial Performance: Evidence from Banking Industry. *Journal of Business Ethnics*,35(2):97-109.

Singh,M. (1997). Inter-Industry Financial Performance Differentials in India. Ph.D. Dissertation.Amritsar:G.N.D.University.

Tsoutsoura (2004). Corporate Social Responsibility and Financial Performance'. Available at www.haas.berkeley.edu

Waddock and Graves (1997). The Corporate Social Performance-Financial Performance Link. *Strategic Management Jóurnal*, 18(4):303-19.

Appendix 1
CSR Measurement Instrument

CSR Items & Dimensions

1. New products and handing consumers complaints
   Launching new products for people betterment
   For cancer patients
   Health care

2. Environmental contribution
   Waste Management
   Plantation & Rain Harvesting

3. Rural Development
   Vocational training programs
   Skilling Rural India
   Farmer's Livelihood
   Doctors in rural India

4. Community Involvement
   Schools parks etc
   Education
   Old age homes
   Drinking water
   Sanitation

5. Human Resources
   Cheaper medicines
   Education to the wards of workers
   Schools
   Safety
   Donate clothes
   Help to calamities suffered people
   Employee education and skill development program

6. Women care
   Women and child care

7. Diversity
   Membership with NGOs

8. Sports

Appendix 2
Computation Criteria for Performance and Control Variables

Performance Variables

$$ROS = \frac{\text{Profit before interest and taxes}}{\text{Net sales}} * 100$$

$$ROA = \frac{\text{Profit before interest and taxes}}{\text{Total assets}} * 100$$

$$ROE = \frac{\text{Profit after taxes and preference dividend}}{\text{Net worth}} * 100$$

$$GSALES = \frac{\text{Current year's sales} - \text{Previous year's sales}}{\text{Previous year's sales}} * 100$$

$$GTNA = \frac{\text{Current year's TNA} - \text{Previous year's TNA}}{\text{Previous year's TNA}} * 100$$

Control Variables

$$\text{Size} = \text{Total assets}$$

$$\text{Leverage} = \frac{\text{Total long-term debts}}{\text{Shareholders' Funds}} * 100$$

$$\text{R \& D intensity} = \frac{\text{Expenditure on R\&D}}{\text{Net sales}} * 100$$

$$\text{Skill} = \frac{\text{Expenditure on salaries \& wages of employees}}{\text{Net sales}} * 100$$