



A REFEREED JOURNAL OF SHRI RAM COLLEGE OF COMMERCE

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# BUSINESS ANALYST

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## ECONOMIC VALUE ADDED AS A MEASURE OF PERFORMANCE: EVIDENCE FROM INDIA

Smita Kashiramka<sup>1</sup>, P. K. Jain<sup>2</sup> and Sanjeev Yadav<sup>3</sup>

*Economic Value Added (EVA), as a value based performance measure for companies, has been widely researched especially in the American and European context. This paper empirically analyses the performance of the non financial companies (comprising the CNX Nifty index) over a period of ten years from 2003-04 to 2012-13. Additionally, value creation in the form of EVA has been compared with Market Value Added (MVA) to identify whether there exists any relation between the two measures. Using panel data regression, an attempt has also been made to examine the relation between MVA, EVA and other accounting measures including Return on Capital Employed (ROCE), Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS). The results indicate that EVA is a significant contributor to creation of market value. Except for ROCE, none of the other accounting measures effect creation of market value. Above all, the accounting profits may not be a true indicator of firm performance.*

**Key words:** Economic Value Added (EVA), Market Value Added (MVA), Accounting Measures, CNX Nifty.

### INTRODUCTION

Superiority of shareholders wealth vis-a-vis maximization of profits is a well established proposition in finance. Further, survival and growth of firms is dependent on their capabilities to generate economic profits compared to accounting profits. The creation of shareholders wealth is possible only when firms make economic profits. Economic profits are estimated after taking into account the opportunity cost of capital (Case et al, 2010).

Economic value added (EVA) is one of the measures that estimates the economic profits of the firms and hence goes beyond the accounting profits. The term EVA was coined by Stern Stewart & Co. in 1990. It is the surplus that remains after factoring the weighted

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average cost of capital of the firm. It is defined as the net operating profit after tax (NOPAT) less a capital charge that reflects a firm's overall cost of capital. In other words, a firm will be considered to have added value for its owners if it is able to generate surplus after covering all its costs including costs of financing and this is what EVA measures.

Generation of EVA by a firm during a given period of time can be gauged by comparing operating profits (after taxes) with the total cost of capital employed, thereby helping the management to ascertain whether the firm's operations have created shareholders wealth or not. Choosing a firm solely on the basis of profitability can at times be misleading (Pettit, 2000). Literature cites several empirical evidences, especially in the American and European context where EVA has been used to measure value creation (Clinton and Chen ,1998; Ismail, 2006). Also, it has been used in relation to other variables like employee compensation (Pettit and Ahmad (2000), market value based measures and accounting measures (Chen and Dodd (1997, Dimitrios et al., 2009). However, the superiority of EVA over the traditional methods of firm's performance remains a debatable issue . Above all, the wide variations in the method of estimating EVA, puts a challenge for researchers to explore more this interesting and important area of firm value creation.

The Indian corporate landscape remains grossly devoid of the application of EVA. A host of studies in the recent past have explored several aspects of EVA; a consensus on EVA as a value enhancing measure, at the global context, has not yet been established (Kaur and Narang,2010). This paper is an attempt to analyze the EVA of the well performing, non-financial companies in the India economy that constitute the CNX Nifty Index over a ten year period from 2003-04 to 2012-13. It aims to achieve the following objectives. Firstly, to ascertain the EVA of non-financial Nifty companies and to assess whether they are able to generate sufficient operating profits to cover their total cost of financing. It also aims at examining if EVA has led to creation of market value for its shareholders. Further, the paper also investigates relation, if any, between MVA ,EVA, ROCE, ROE, ROA and EPS of the companies concerned.

The paper is divided in five sections. Section one gives an introduction to the topic followed by empirical evidences from global and Indian context in Section two. Data and methodology have been elaborated in Section three. Results and discussions follow in Section four followed by conclusions, managerial implications, limitations and future scope of work in Section five.

## RELEVANCE OF EVA: EVIDENCES FROM LITERATURE

The literature on EVA encompasses several aspects of valuation and performance based measures. Based on the objectives of this work, this section on review of literature has been organized around three main dimensions of EVA; (i) EVA as an appropriate performance based measure, (ii) EVA, MVA and their relationship and finally (iii) relatedness of EVA with other accounting based measures.

### EVA as a performance based measure

The findings of Stewart (1991) establishing EVA as a superior method of measuring corporate performance over the traditional accounting methods has been corroborated in several other studies carried out later. This pioneering work cites that EVA can remove the distortions in General Accepted Accounting Practice (GAAP) and covers all aspects of managerial decision making process. Tully (1993) identified EVA as a single method that captures firm performance and can serve as a guide for investors to make correct investment decisions, as well as guiding managers in identifying value adding business opportunities. Stewart (1994) emphasized the superiority of EVA as a measure of wealth creation and claimed it to be fifty percent better than traditional accounting measures in explaining changes in wealth of shareholders. Lehn and Makhija, (1996) concluded that EVA is superior to accounting profits as a measure of value creation because it recognizes the cost of capital and, hence, the riskiness of a firm's operations.

Similar to studies above, McClenahan (1998) conclude that the traditional performance measures based on accounting data were getting lesser priority and measures like EVA were gaining front seat. Brewer *et al.* (1999) report that EVA as a measure of performance should be used cautiously; other measure like Balanced Score card could be additionally employed. Yet, they note that EVA provides better goal congruence than measures like ROI.

Employing different measures to assess performance including EPS, ROI, ROE, etc., can at times yield conflicting results. EVA helps in eliminating such conflicts as it is a comprehensive measure of a firms performance (Kudla and Arendt, 2000). (Berry 2003) emphasize that EVA can be the best measure for public limited companies as it takes into account the full cost of capital including cost of equity which does not get reflected in accounting net income. Haque and Islam (2013) analyzed EVA in Bangladesh and recommend that decisions regarding choice of strategy, mergers ,etc., should be based

on EVA. Sharma (2013) compared traditional financial performance measures and EVA for Infosys and observed EVA to be a superior performance measure than other traditional methods.

### **EVA and MVA: A comparative framework**

Market Value Added is a concept that measures the extent to which value creation has taken place with reference to the book value of invested capital. Stewart(1991) conceives MVA as the present value of future stream of EVAs discounted at an appropriate rate of cost of capital thereby establishing a direct relation between EVA and MVA; in operational terms, it implies that consistent improvement in EVA drives market value of equity. The following paragraph enumerates relationship between EVA and MVA.

Adopting EVA as a measure of firm performance triggers increase in stock price (Burkette and Hedley 1997). Banerjee (2000) has examines the linkage between EVA and MVA in 200 Indian firms and notes that market value of firms can be predicted by estimating future EVA flows. Taub (2003) examines the relation between EVA, MVA and other variables and concludes that EVA explains changes in MVA seven times more than sales growth; it implies that EPS only explains about 3 per cent of the change in MVA. In the banking sector, Davidson (2003) explains that EVA enhances both performance and profitability of banks as well as improves stock performance. Hence, literature cites several evidences of EVA being a superior measure of firm performance. This paper attempts to establish this relationship, if it exists in the case of best performing Indian companies.

### **METHODOLOGY AND DATA**

For estimating EVA and MVA and establishing relationship between EVA, MVA, ROCE, ROA, ROE and EPS, multiple regression has been carried out using panel data in Stata for a period of ten years from 2003-2004 to 2012-2013.

#### **Sample Size and data sources**

The sample data initially comprised of 39 non-finance companies that constitute the S&P CNX Nifty index. However, for seven companies, complete data for the ten years was not available; hence, these companies were excluded from the analysis resulting in a



final data set of 32 companies. The reason for selecting companies from the Nifty index was as these companies are considered to be the best performing companies in the country, hence, estimating EVA becomes relevant. The financial statements and accounting data were drawn from Ace Equity and Capitaline Plus database and the stock prices were taken from the website of National Stock Exchange (NSE).

**Estimating the EVA, MVA and accounting measures**

There is no unique method of estimating EVA. A spectrum of measuring EVA has been discussed ranging from Basic EVA (arrived at without making any adjustments), Disclosed EVA (arrived by making a dozen of adjustments), Tailored EVA (arrived at by making tailor made adjustments relevant to the organization) and True EVA (the accurate measure incorporating all relevant adjustments is difficult to estimate) (Ehrbar 1998 in Banerjee, 2000). This paper determines EVA that lies between basic and Disclosed EVA as estimated in Banerjee, 2000:

$$EVA = NOPAT - WACC \dots\dots\dots(1) \text{ and}$$

$$NOPAT = EBIT (1 - T) \dots\dots\dots (2) \text{ where,}$$

EBIT = Earnings after Tax (EAT)+ Provision for Taxes +Interest Expense+ Lease Rent- Extraordinary Income+ Extraordinary Expenses,

NOPAT (Net Operating Profit After Tax) = Profits derived by the company's operations after taxes but before financing costs,

WACC = Weighted Average Cost of Capital and T = Effective Tax Rate

While estimating the WACC,  $k_e, k_d$  and  $k_p$  represent the cost of cost of equity, after tax cost of debt and cost of preference shares respectively.  $k_e$  was estimated using the Capital Asset Pricing Model (CAPM). Hence, EVA is the profit earned by the firm less the cost of financing the firm's capital. Further, to take care of the firm size effect, standardized EVA or Economic Value Added as a percentage of Capital Employed (EVACE) was estimated as follows:

$$EVACE = \frac{EVA}{CE} \dots\dots\dots (3) \text{ where,}$$

CE = Capital Employed at the beginning of the year.

**Market Value Added (MVA)**

Another important concept introduced by Stewart (1991) is that of MVA which measures the value addition by market over the book value of the invested capital. MVA indicates to what extent the market displays confidence in the performance of the company.

$$MVA = \text{Market Value of Equity} - \text{Book Value of Equity} \dots\dots\dots(4)$$

Market Value of equity has been measured as the product average of the last thirty days adjusted closing market price and number of outstanding shares. MVA measures the total market value added to the stock of capital of a firm; hence, it is a cumulative measure (Fatemi *et al*, 2003). Since the sample companies emanate from different industries, hence to take care of size effect and industry effect, the MVA was standardized by the Capital Employed (CE) or Market Value Added as a percentage of Capital Employed (MVACE) was estimated as:

$$MVACE = \frac{EVA}{CE} \dots\dots\dots(5)$$

**Relation between EVA, MVA and Accounting based measures of performance**

To analyze the relation between EVACE, MVACE and traditional accounting based measures of firm performance, namely ROCE, ROE, ROA and EPS, multiple regression using panel data was undertaken. Since market value is assumed to reflect the firm performance, hence, MVACE was identified as the dependent variable and rest others as explanatory variables. Further, to ensure the appropriateness of this model, pooled regression, fixed effect and random effects models were used and tested using Breusch and Pagan Langrangian Multiplier Test and Hausman Specification Test.

**RESULTS AND FINDINGS**

The summary statistics with respect to EVA and MVA are presented in Table 1. It indicates that out of 32 companies, 22 companies have been able to generate economic value over the ten year period. However, 10 companies namely Hindalco Industries Ltd, BPCL, Tata Steel Ltd., J.P. Associates Ltd., Tata Power Ltd., Maruti Suzuki India Ltd. Jindal Steel Ltd., Tata Motors Ltd., L&T Ltd. and Reliance Industries Ltd., did not generate value for their shareholders over the period covered under the study.

**Table 1. Summary Statistics: Relation between EVA and MVA**

Economic Value Added	Market Value Added		
		Positive	Negative
	Positive	21	0
Negative	10	1	

Table 1 further indicates the relation between EVA and MVA of the sample companies. On an average, nearly 65% of the companies that generated economic value were also able to generate market value for the shareholders. However, firms that were not able to generate EVA, were generating market value as all these firms were reporting accounting profits over the given period. Hindalco was the only firm for which both EVA and MVA were negative.

The output of Pearson's Correlation between pairs of matrices is presented in Table 2. The result shows that EVACE (0.8505), ROA (0.5763), ROE (0.7116) and ROCE (0.7616) have strong positive correlation with MVACE. This implies that any increase in the independent variable EVACE, ROA, ROE and ROCE will result in increase of MVACE to the extent of coefficients obtained. It is revealing to note the weak and negative correlation of EPS (-0.0669) with MVACE. This implies that any increase in EPS will contribute to decrease in MVACE, although the impact would be negligible at 0.0669 times change in value of EPS.

EVACE has the highest positive correlation coefficient at 0.8505, followed by ROCE and ROE at 0.7616 and 0.7116 respectively. Barring EPS, all the other explanatory variables are significantly correlated to MVACE at 5% level of significance. The same holds true for EVACE with all other variables used in the regression equation. Also, ROE, ROE and ROCE are significantly correlated with each other.

**Table 2. Pearson's Correlation Matrix**

	MVACE	EVACE	EPS	ROA	ROE	ROCE
MVACE	1.0000					
EVACE	0.8505	1.0000				
EPS	-0.0669	0.1045	1.0000			
ROA	0.5763	0.6932	0.2945	1.0000		
ROE	0.7116	0.8518	0.2193	0.8144	1.0000	
ROCE	0.7616	0.9003	0.2159	0.8228	0.9280	1.0000

### Pooled and Random Effect Regression

To analyze the ten year data, multiple regression was run with pooled, fixed effect and random effect. The Breusch and Pagan Lagrangian Multiplier Test for Random Effects was conducted to identify the appropriate method to be adopted. Table 3 presents the findings of the test. The results of this test indicate that the Pooled Regression is not an appropriate model for the study at  $p < 5\%$ .

**Table 3. Breusch and Pagan Lagrangian Multiplier Test for Random Effect**

Breusch and Pagan Lagrangian Multiplier test for random effects		
MVACE[Company,t] = $x_b + u[\text{Company}] + e[\text{Company},t]$		
Estimated results:		
	Var	sd = sqrt(Var)
MVACE	<b>18.98465</b>	<b>4.357138</b>
e	<b>2.928521</b>	<b>1.711292</b>
u	<b>1.705693</b>	<b>1.306022</b>
Test: Var(u) = 0	chi2(1) =	<b>143.99</b>
	Prob > chi2 =	<b>0.0000</b>

Based on the results obtained in Table 3, selection had to be made between Random Effect and Fixed Effect Regression models. Hausman Specification Test was conducted to differentiate and select between the two models. The results in Table 4 indicate that the Fixed Effect Model is more appropriate than the Random effect model for the given dataset at “p” < 5%.

**Table 4. Hausman Specification Test**

. Hausman Fixed .				
	— Coefficients —			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random	Difference	S.E.
EVACE	<b>.1191902</b>	<b>.1581528</b>	<b>-.0389626</b>	<b>.0080376</b>
EPS	<b>-.0114567</b>	<b>-.0143102</b>	<b>.0028535</b>	<b>.0011448</b>
ROA	<b>.0326189</b>	<b>.0189711</b>	<b>.0136478</b>	<b>.0206464</b>
ROE	<b>.0253248</b>	<b>.0189727</b>	<b>.0063521</b>	<b>.0060855</b>
ROCE	<b>.0808421</b>	<b>.0628003</b>	<b>.0180419</b>	<b>.0080221</b>
b = consistent under Ho and Ha; obtained from xtreg				
B = inconsistent under Ha, efficient under Ho; obtained from xtreg				
Test: Ho: difference in coefficients not systematic				
	chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)			
	= <b>11.87</b>			
	Prob>chi2 = <b>0.0366</b>			
	(V_b-V_B is not positive definite)			

Therefore, based on the results obtained in Table 3 and Table 4, Fixed Effects Regression method was selected for analyzing the regression amongst variables. The results with the Fixed Effects method are presented in Table 5.

**Table 5. Fixed Effects Regression Results**

Fixed-effects (within) regression		Number of obs	=	<b>319</b>	
Group variable: <b>Company</b>		Number of groups	=	<b>32</b>	
R-sq: within	= <b>0.4370</b>	Obs per group: min	=	<b>9</b>	
between	= <b>0.8426</b>	avg	=	<b>10.0</b>	
overall	= <b>0.7298</b>	max	=	<b>10</b>	
corr(u_i, Xb)	= <b>0.4861</b>	F(5, 282)	=	<b>43.78</b>	
		Prob > F	=	<b>0.0000</b>	
<b>31</b>					
MVACE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
EVACE	.1191902	.0219378	5.43	0.000	.0760076 .1623729
EPS	-.0114567	.003279	-3.49	0.001	-.0179111 -.0050024
ROA	.0326189	.0379031	0.86	0.390	.1072278 .0419901
ROE	.0253248	.018786	1.35	0.179	.0623033 .0116537
ROCE	.0808421	.0224315	3.60	0.000	.0366877 .1249965
_cons	1.918276	.3145413	6.10	0.000	1.299129 2.537423
sigma_u	1.8549329				
sigma_e	1.7112921				
rho	.54021286	(fraction of variance due to u_i)			
F test that all u_i=0:		F( , 282) =	<b>7.55</b>	Prob > F = <b>0.0000</b>	

The overall R squared value shows that 72.98% of the total market variations are explained by the five independent variables – EVACE, EPS, ROA, ROE, and ROCE. At 5% level of significance (“p” < 5%), coefficients of three variables, EVACE, EPS and ROCE, are statistically significant. The results indicate that EVACE and ROCE will significantly improve the MVACE; higher EVACE and ROCE tend to increase shareholders wealth. However, EPS is significant, but indicates a negative relationship with MVACE, implying that any increase in EPS will decrease MVACE. Hence, the results indicate that the use of EPS as a measure of firm performance may not be an appropriate method. Instead, the focus of the management should be on EVACE and ROCE to maximize shareholders' wealth.

**CONCLUDING OBSERVATIONS**

The results from the study lead to draw the following conclusions. Accounting profitability cannot be presumed to be a basis of wealth creation for shareholders. This can be gauged from the fact that despite the 32 firms from Nifty Index were well

performing, nearly one third were not able to generate economic value. All firms that could generate EVA reported wealth generation as well in the form of MVA. Hence, it can be concluded on an overall basis that EVA influences wealth formation to maximum extent out of all the explanatory variables. This further gets corroborated from the regression results that indicate significant positive impact of EVACE on MVACE.

All the accounting measures including EPS, ROE and ROA do not affect market value creation. It is surprising to note that EPS negatively contributes to market value creation. This finding emphasizes the fact that EPS can be a misnomer in terms of interpreting financial results. ROCE captures the total capital invested in a firm, hence, ROCE inducing market value creation is well justified on theoretical as well as empirical grounds. The ranking of the sample firms (Appendix 1) indicates that Hindustan Unilever Ltd. remains the best performer both in terms of economic value creation and shareholders wealth generation. Hence, the supremacy of Stewart's claim o EVA being a true indicator of firm performance gets validated in this study.

However, the study suffers from certain limitations. A sample size of 32 firms may be considered inadequate to generalize the results. Further, estimating the cost of equity using CAPM may be influenced by the wide fluctuations in market performance that cannot be controlled for on an absolute basis. The results of the study can be improved by including a larger dataset and including more explanatory variables. Further, MVA is a cumulative value. Better results can be obtained by using incremental MVA in the regression equation. Sector-wise analysis can also be conducted to get better insights on the subject.

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## Appendix 1. Ranking of Companies based on EVACE and MVACE

Ranking of the sample firms based on EVACE and MVACE indicate a mixed pattern. Except for Hindustan Lever, BHEL, Power Grid, ITC and NTPC that appear identical or very close in ranking based on both EVACE and MVACE, for remaining firms, the correspondence varies. However this discrepancy will be there as EVA is estimated every year whereas, MVA is a cumulative figure; hence, a method to overcome this drawback is to use incremental MVA and compare it with corresponding EVA every year. However, the top ten firms in terms of EVACE also occupy the ranks amongst top thirteen firms as per MVACE rankings (although not in similar order). This indicates that the positive EVA generating firms standardized with respect to capital employed are also the once adding market value.

### Ranking of companies based on EVA and MVA: A Comparison

Company Names	Ranking based on EVA/Invested Capital	Rankingbased on MVA/Invested capital
Hindustan Unilever Ltd.	1	1
Hero MotoCorp Ltd.	2	5
TCS Ltd.	3	2
Asian Paints Ltd.	4	3
Sesa Sterilite Ltd.	5	18
Infosys Ltd.	6	4
ITC Ltd.	7	6
Lupin Ltd.	8	15
Sun Pharmaceuticals Industries Ltd.	9	7
Wipro Ltd.	10	8
HCL Technologies Ltd.	11	10
Cipla Ltd.	12	12
ACC Ltd.	13	17
Bharat Heavy Electricals Ltd.	14	9
Oil & Natural Gas Corporation Ltd.	15	25
Mahindra & Mahindra Ltd.	16	16
Jindal Steel & Power Ltd.	17	23
Ambuja Cements Ltd.	18	22
Bharti Airtel Ltd.	19	11
GAIL (India) Ltd.	20	26
Grasim Industries Ltd.	21	24
Ranbaxy Laboratories Ltd.	22	14
Tata Motors Ltd.	23	19
Tata steel Ltd.	24	30
JP Associates Ltd.	25	29
Larsen & Turbo Ltd.	26	13
Dr. Reddys Laboratories Ltd.	27	20
Bharat Petroleum Corporation Ltd.	28	31
Maruti Suzuki India Ltd.	29	21
Reliance Industries Ltd.	30	27
Tata Power Company Ltd.	31	28
Hindalco Industries Ltd.	32	32



## VAT ADMINISTRATION: IS IT A PROBLEM FOR INDUSTRIAL DEVELOPMENT IN BANGLADESH ?

Sugan C Jain<sup>1</sup> and Ved Parkash<sup>2</sup>

### INTRODUCTION

This paper explores whether VAT administration is a problem for industrial development in Bangladesh. Its major message is that VAT administration warrants more stress to simplify the rules and regulations of the VAT system. As we all know, value added tax is commonly known as VAT. It is a breakthrough in the traditional indirect taxation system. It was introduced in Bangladesh in July, 1991. The system was adopted first by the French in the year 1936, after many years of academic and practical experimentation, as a single stage. It was extended to the wholesale stage in 1954 and to the retail stage in 1966. In a highly developed country like France, it took 30 years for this tax to be implemented to cover all manufacturing, trading and service industries. And then it was adopted by many other developed and developing countries considering its utility, simplicity, comprehensiveness and neutrality. But, some adverse and unclear provisions of the VAT law matched with the bureaucratic approach of administration caused hindrance to the industrial development of Bangladesh. To express this idea, this paper presents the difficulties of tax payers relating to the focal issues of the VAT System.

### PRICE

As per Sec 5 (2) of the VAT Act 1991, VAT is payable upon the price realizable from a customer by a manufacturer or producer. Price as noted in the said Sec consists of all costs of the manufacturer or producer such as commission charges, all duties including supplementary duty and taxes excluding VAT. The cost of a manufacturer is commonly known as the manufacturing cost.

For a company having manufacturing activity only, price as stated above is quite clear. But, for a company with a self-distribution network for the marketing of its own product, price, being the basis for the computation of VAT, is very much confusing as the amount realizable from customers includes distribution cost and profits from distribution

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activities which are beyond the purview of VAT according to the single-stage principle, still in force, almost for all domestic products.

Again, if the company pays VAT considering the value added by it as a manufacturer only, then the price declared under rule 3 (1) would be much below the amount realizable from the customer as a manufacturer-cum-wholesaler. The difference between market value and declared price will then attract VAT with retrospective effect by dint of the power bestowed upon the VAT authority by SRO no 99 of 15.06.95 as issued by the National Board of Revenue (NBR) and thus the company may end up in a legal battle. More than 8 year have passed since the introduction of VAT, but this fundamental provision of law is yet to be made transparent. However, to remove the lacuna, by this time the NBR has taken some measures, but, unfortunately, instead of addressing the issue they have created additional problems.

On 15 June 1996 the NBRT issued a general order to consider the tariff value of the imported raw material when it is higher than the C & F value for the determination of the vatable price of a production on the grounds that a rebate has been taken on the basis of tariff value being the assessable value. For an industrial company with a fair accounting system it is almost impossible to comply with this order without the manipulation of cost accounting information. If so, the financial information of the company as a whole will be unacceptable to all users including the Income Tax Authority, the Auditor and the Registrar of the Joint Stock Companies. Again, as the product price could not be increased in view of this order, a paper increase in the cost of raw materials will only be supplemented by a reduction in margin. Thus, the order has no impact upon revenue except begin a call to furnish a price declaration with inflated information.

A change curving the way to avoid proportionate VAT by a marketing company dealing with its own brand product, produced and supplied by others on a contract or sub-contract basis, has been incorporated by the addition of Sub Sec 12 Ka to Sec 5 of the VAT Act 1991. The provision is applicable only to the company registered. It is silent about similar company being unregistered and a company which is marketing imported products supplied by overseas principals.

## **INPUT-OUTPUT RELATION**

In pursuance of VAT order no 2 of 19 October 1991, declaration of the input-output relation of every production unit in the prescribed proforma is mandatory for every

manufacturing company. The prescribed proforma asks for complete disclosure of the product formulation. Formulation is a trade secret for which every company should pay a huge amount of royalty or spend a lot of money on research and development activities. Thus, access to formulation is highly restricted even to company personnel. The VAT authority and other office staff are not legally obliged to maintain secrecy of information as furnished by taxpayers. The issue was discussed with the VAT authority in different forums, but the agreed circular relaxing the aforesaid requirement is yet to be issued.

However, on submission of the input-output relation in the prescribed proforma, the Divisional-in-Charge asked for all supporting to the cost of raw materials as shown in the said proforma. Supporting as required by the authorities is the true copies of all documents in connection with the purchase and additional cost of the raw materials concerned brought to the place of production. Depending upon the nature, each production unit may require numerous items of raw materials. For example, the formulation of product A asked for 20 types of raw materials. The weighted average cost method is in practice for the computation of the cost of the raw material consumed. And at the time of price declaration the weighted average price of item no 1 was TK 100 per kg and accordingly the company quoted the price. If the average is the outcome of 10 purchase transactions consisting of 3 local and 7 foreign, then the volume of supporting for item no 1 should be at least 100 pages and for 20 items on average 2,000 pages. If the number of production units is 200 then the company should furnish a supporting of 400,000 pages for an initial price declaration and subsequently on average 2,000 pages for each unit at the time of every change in price. In view of the above data, it is clear to all that the furnishing of supporting to cost for an industrial company is a matter of huge undue expenditure which will simply distort the profitability of the company. On the contrary it is the Divisional-in-Charge who can postpone the delivery by rejecting the price declaration due to non-compliance with her/his order. Thus, in this way the company is on the horns of a dilemma as a result of the bureaucratic approach of the authority.

## **PAYMENT**

In accordance with Sec 6 (2), VAT is due for payment at the time of delivery. Delivery means the release or removal of a product from the place of production by a manufacturer; it is generally sold to the customer. So VAT is an advance tax payable by a manufacturer which is realizable along with sale proceeds from the customers. In the present competitive market, avoidance of credit sale is almost impossible. In case of credit sale, a

manufacturer should wait for an additional period of time after the execution of sales to realize the VAT advanced earlier. Again, there is no provision for taking the credit of VAT related with bad debts which are a reality in every business environment.

Thus, VAT is a part of working capital to be invested by a manufacturer at the time of procurement of raw materials and delivery of products. This investment generates no margin but incurs loss as a result of the complicity of law. To analyze the impact of VAT upon the liquidity and profitability of a manufacturing company, a simple example has been presented below.

Alpha Ltd., manufacturer of a toilet soap, commenced business on 01.01.97 and cleared the first consignment of imported raw material on 31.03.98. The landing cost of the consignment excluding AIT and VAT was Tk 500 lakh on which the company paid an amount of Tk 60 lakh, it being 15% of the VAT leviable value of TK 400 lakh as VAT. While receiving the raw materials, a transit loss of 5% was observed and recorded. The company added the value of Tk 250 lakh to the entire input and completed the production process by 30.06.98. On 01.07.98 the total output worth Tk 750 lakh was delivered to different sales centres on payment of Tk 52.5 lakh as output VAT, it being the net of the rebate. But the VAT authority rejected the rebate on lost quantity amounting to Tk 3 lakh and compelled the company to make an additional deposit to that extent. The policy of the company is to extend 1-month credit to institutional customers, it being 50% of the total sales. The entire products were sold out within 3 months at even rate following the date of delivery. For better understanding, the said data are given below in tabular form:

#### Alpha Limited

Month	Cash	Sales Credit	Total	Realization from Debtors	Bad Debt - 5% of Credit Sales	VAT Paid	Realized	Lost
	Tk.	Tk.	Tk.	Tk.	TK.	Tk.	Tk.	Tk.
March	-	-	-	-	-	60	-	-
June	-	-	-	-	-	55.5	-	3
July	143.75	143.75	287.50	-	-	-	18.75	-
Aug.	143.75	143.75	287.50	136.56	7.19	-	36.56	.94
Sept.	143.75	143.75	287.50	136.56	7.19	-	36.56	.94
Oct.	-	-	-	136.56	7.19	-	17.81	.94

The table reveals that a mandatory investment of Tk 115.5 lakh in the Government Exchequer as VAT has been realized long after sustaining a loss of Tk. 5.82 lakh.

## REBATE

Avoidance of tax on tax is an interesting feature of the VAT system. The principle was confirmed at the commencement by incorporating Sec 9 into the Act. But, since the inception of the Vat System, taxpayers have been deprived of this legitimate right to have a rebate on different input items simply because of the legal complicity and bureaucratic approach of some service-rendering government organizations.

VAT on the services of Tar (ie wire) and Telephone Board (T&T) was imposed with effect from July 1992. In view of the provision of Sec 9 many taxpayers approached to claim a rebate but the VAT authority rejected the claims on the grounds that T&T had not issued any *challan-patra* in the prescribed proforma. Thereafter, numerous humble requests were made to the T&T authorities but none could convenience them to issue the required *challan-patra*. However, considering the suffering of the taxpayers, the NBR was kind enough to authorize the format of the T&T bill as a substitute for the prescribed proforma subject to mentioning the VAT registration no of T&T therein. Again, by the same order, the NBR restricted the quantum of rebate to 60% of the VAT paid along with the T&T bill, raising the question of personal use by company personnel.

## AUDIT

To conduct an audit on the accounts as maintained u/s 31 of the VAT Act 1991, the Vat authority has a separate audit department. Further, the NBR is authorized to appoint an auditor by an order u/s 26 (3). In a manufacturing environment for the successful completion of a VAT audit, one should have a through idea of business is also essential. In short, like an audit, in pursuance of the Companies Act, income tax laws and other relevant laws, professional expertise is a must for the successful completion of a VAT audit.

Probably, considering those facts and realities the said Sec 26 (3) was incorporated in the VAT Act by the Finance Act 1993. But, most unfortunately, instead of utilizing the services of professional auditors, the government has imposed VAT upon audit service by the Finance Act 1998. Thus, the hope for a quality audit of the VAT account as raised by the Finance Act 1993 has been nipped in the bud by the same Act of 1998.

## CONCLUDING REMARKS

It is clear from the foregoing discussion what problems the manufacturers are facing to

pay VAT. Several non-transparent rules and regulations, together with huge paper work, and the too bureaucratic approach of VAT administration appear to be a great problem for taxpaying businessmen and industrialists. Everybody blames the taxpayers calling them dishonest and insincere. True, they are not so sincere and honest as the nation expects them to be. But what about the VAT administration machinery? It is also very bureaucratic in its approach, which is unbecoming of a democratic country. To attain sustainable development, there is no alternative to industrialization. A company is required to fulfil numerous legal obligations to run an industrial undertaking. The VAT Act 1991 is a unit of the portfolio of laws to be complied with by every industrial company. The provisions of the VAT law are equally applicable to all manufacturers having a turnover exceeding Tk 15 lakh. Small and cottage industries are the pioneers of industrial development in Bangladesh. The problems discussed earlier appear very tough for such industries as they run with very limited resources. Again, we are competing with other developing countries to attract foreign investments. Foreign investors are looking for a congenial environment to invest but the aforesaid problems are seriously discouraging them.

In view of this new provision, the taxpayers proceeded further to claim a rebate, but the authority stopped them again raising the question of non-availability of the registration no of T&T on the bill. However, after a long struggle, recently T&T has incorporated the said registration no in its computerized billing system.

Now the taxpayers are expecting a clear decision from the VAT authority regarding the amount deposited by them during the period from July, 1992 to May, 1998.

VAT on services concerned was deposited initially by taxpayers into the bank account of T&T, which was ultimately transferred to the Government Treasury. As the bank account of T&T belongs to the government, the said initial deposit formed a deposit into the Government Treasury. Thus, rejection of the genuine claim for a rebate simply because of the negligence of a state-owned organization was an unjust action upon the taxpayers. Again, restriction of the quantum of the rebate to 60% with a plea of personal use is also irrational as the personnel are barred from running any personal business while in employment almost in every company and the entire cost of services is added with value for the determination of VAT.

The taxpayers are facing similar problems in connection with the services of another state-owned monopoly viz WASA.

The normal loss of raw materials due to handling is a reality in every manufacturing environment. But, unfortunately the VAT authority refused to give a rebate proportionate to the lost quantity on the grounds that those materials were not consumed. This is ignorance of the universal practice on the one hand and a punishment for honest producers who maintain a fair record on the other.

## ACCOUNTS

As per Sec 181 of the Companies Act 1994, maintenance of books of accounts at the registered office relating to the following is compulsory for every company:

- a) All sums received and expended;
- b) All sale and purchase of goods;
- c) All assets and liabilities and
- d) All manufacturing, processing, extraction costs and overheads.

In view of the internal control system in practice, almost all companies used to maintain more subsidiary books of accounts to satisfy the multifarious queries of different users of financial statements. The aforesaid books of accounts are utilized simultaneously to satisfy the requirements of the Company Law Authority, the Income Tax Authority, the Security and Exchange Commission and others.

In pursuance of the provision of Sec 31 of the VAT Act 1991, a company should maintain the following books of accounts in the prescribed proforma at the place of production:

- a) Purchase of all taxable and exempted commodities and services;
- b) Sales including the export of all taxable and exempted commodities and services;
- c) Current account;
- d) VAT deposit account;
- e) Stock register for input and output and
- f) Any other accounts as determined by rules.

A simple analysis of the aforesaid requirements reveals that all accounting information as required by the VAT Act is readily available in the books of accounts as maintained by the company in pursuance of the Companies Act to be noted hereinafter as institutional accounts. Again, as per the Companies Act, books of accounts should be kept at the registered office but the VAT Act asked for the maintenance of books of accounts at the

place of production usually beyond the registered office.

Thus, just to satisfy the requirements of the VAT Act a manufacturer should maintain a duplicate set of accounts incurring huge expenditure with the information available in the said institutional accounts. It is notable that the returns as required by the VAT authority could easily be generated from the base data of institutional accounts with certain rearrangement in the system.

It is not understood why the VAT authority could not come out of the traditional idea of record keeping in this age of information revolution, why they could not accept more comprehensive institutional accounts while the Income Tax Authority, being another wing of the NBR of the collection of Government revenue, could.

Only a through change in the bureaucratic approach accompanied by amendments of the relevant provisions of law can remove the problems which stand in the way of industrial development. Otherwise the political commitment of the government to economic emancipation will die in the ditch of the Manifesto.

However, there is no denying the fact that for development activities and overall economic growth, mobilization of internal resources is a prerequisite condition. VAT may prove to be a practical solution to this. But its implementation and enforcement need adequate groundwork and caution. Too much of a bureaucratic approach in VAT administration and too much of paper work matched with a lot of non-transparent rules & regulations will not serve the purpose for which VAT was introduced in Bangladesh.

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## TRENDS IN OUTWARD FDI FROM DEVELOPING COUNTRIES WITH SPECIAL REFERENCE TO BRICS COUNTRIES

K.V. Bhanu Murthy<sup>1</sup> and Manoj Kumar Sinha<sup>2</sup>

*The motivation of this paper is to see what are the patterns of dominance and competition of outward FDI amongst developing or BRICS Countries. We use set of new indices and Bodenhorn's measure of Mobility and Turnover. FDI outflow from developing countries and BRICS countries is growing at 15 percent and 28 percent respectively. Growth rate of FDI outflows from developing countries is higher than the world. Most dominating country is China, Hong Kong SAR. BRICS countries have one-fourth in FDI outflow. India is at eleventh position and has 2.2 percent share only. Mobility and turnover is higher in outflow than stock. FDI outflow is dominated by a few developing countries within developing countries group. This is an expected result because they are not major exporters of capital. In general, outward FDI has been increasing from developing or BRICS countries, but these countries are not leading in global outward FDI.*

**Key words:** Foreign Direct Investment, Outward Stock and Flow, Dominance, Mobility and Turnover

### INTRODUCTION

On account of globalisation, we expect that international capital flows would be rationally distributed. The implication is that both in terms of outflows as well as inflows, the distribution would be more rationale. The rationale distribution of outflows implies that the home (source) countries should compete with each other, so as to provide competitive conditions for FDI flows for the recipient or host countries. Otherwise home countries would be able to dictate the terms of FDI outflows. For instance they may seek profit guarantees. If such guarantees are granted they would encourage inefficient production. If there is a competition then we would expect that

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outflows would come from the most efficient source. The gain from such international relocation of production will go to the host countries. It is therefore necessary that the pattern of FDI outflows should not be dominated by few countries. This tendency would lead to misallocation of capital flows and would result in sub-optimal use of global resources that are employed by FDI flows. It may therefore result in a situation where the gains from opening of capital flows do not lead to a maximisation of global production and global economic welfare. It is expected that the managerial and technical efficiency of multinational enterprises (MNE) would result in more efficient use of host country resources. Implicit in the design of opening up and globalisation is the understanding that the objective of permitting global capital flows is to maximise international production and economic welfare.

The motivation of this paper is to see whether developing or BRICS countries are leading or following the world economy. How these countries are performing in relation to the developed world. We want to see what are the patterns of dominance and competition of outward FDI in developing or BRICS Countries.

### **Plan of the Study**

In Section 1 is discussing about introduction. Section 2 explains about data source and methodology. Section 3 gives the literature review. The following Section contains all the results and analysis. The last section is about conclusions and final analysis.

### **DATA AND METHODOLOGY**

**Data Sources:** we have collected online data for our study mainly from UNCTAD. Our period of study is 1990-2011. We have taken 22 developing countries including BRICS countries. BRICS countries include Brazil, Russia Federation, India, China and South Africa.

#### ***Growth Index***

Growth Index of FDI means growth of FDI with respect to base year FDI. It indicates growth of outward FDI in subsequent years in percentage point with reference to base year.

$$GI_{FDI} = FDI_t / FDI_b * 100$$

- GI<sub>FDI</sub> = Growth index of FDI
- FDI<sub>t</sub> = FDI at t year
- FDI<sub>b</sub> = FDI at base year
- Base year = 1990
- t = 1990, 1991, 1992....., 2009.

***Growth Rate (Semi-log Growth Equation)***

We use a set of semi-log growth equations to measure rate of growth over different periods. Time factor represents policy and general factors that influence FDI. This enables measurement of rate of growth (RoG) through time series analysis during 1990 to 2011. Rate of growth is measured for each countries group over time. Adjusted R square measures influence of time on FDI. P-value represents the level of significance. The growth equation is

$$FDI = e^{a+bT}$$

Taking log of both sides and adding error term (or semi-log growth equation).

$$\text{Log (FDI)} = a + bT + u_t$$

'a' represents intercept

'b' represents annual exponential growth rate.

'u' represents error term

'T' = 1990, 1991,....., 2011

***Trends: Proportion of FDI***

With globalisation and WTO, FDI flows and stock has been increased many times of absolute term for each country groups over last two decades. We are here examining the change in geography of FDI flows and stock in proportionate terms for each country grouping.

***Dominance Patterns***

Dynamic changes in the pattern of outward FDI would result in changing ranks of different countries in terms of the outflows and outward stocks. This represents a state of competition amongst different countries. It is normally not possible for any single country to dominate FDI outward investment pattern for whole period 1990 to 2009. Even if a country is not at top in one or more years it should be possible to capture the

dominating country. It is interesting to know whether there is any dominant country or a constant flux in the ranking of different countries. We have studied dominance in three ways:

1. The rankings patterns at three points of time, which is a discrete measure of dominance.
2. Index of Rank Dominance (IRD) which is a relative dominance measure by ranks, (Murthy, 2011). This is measure of continuous dominance.
3. Bodenhorn's measure of competition.

The index of rank dominance (IRD) is an innovative measure which tells us a coefficient that expresses the degree of dominance of an ordinal measure such as rank. IRD has further refined as a relative- Relative Index of Rank Dominance (RIRD), which measures dominance in a relative sense. This gives the proportionate weight of the rank dominance index.

### ***Index of Rank Dominance***

Amongst the top twenty or ten countries respectively which of the country's has the dominant position (i.e. highest rank) for the longest period is estimated with the help of index of rank dominance (Bhanu Murthy, 2011).

$$I_{RD} = \frac{\sum_{i=1990}^{2011} (\text{Rank Score})_i}{\text{Maximum Rank Score} \times \text{No. of Years}}$$

$I_{RD}$  is the index of Rank Dominance.

Rank Score = 20, 19, 18... (In decreasing order of rank).

There are four properties of this new index:

1. The value of  $I_{RD}$  lies between 0 and 1, that is,

$$0 < I_{RD} \leq 1$$

$I_{RD}$  measures in relative terms the position of the most dominant centre over period from 1990 to 2011 for attracting FDI. The value of  $I_{RD}$  lies between zero and one but never become zero because in this index, countries included must be at least one time be placed in the top twenty (ten) positions over the period 1990 to 2011. The maximum value of  $I_{RD}$  shall be one

provided a country has been at top position in all years from 1990 to 2011 in outward FDI.

2. IRD is a measure of continuous dominance.
3. RIRD enables measuring the relative continuous dominance.
4. IRD is a measure that applies to panel data. That is it measures the dominance and amongst 'N' countries over a time periods of 'T' years.

### ***Mobility and Turnover***

This is as a sum of rank changes among the top FDI home countries. Mobility is a churning in rank position of the leading FDI donor countries. It means changes in rank position within leading countries. The measure of turnover as the number of countries below the leading FDI home countries replace the countries belonging to the leading FDI home countries. In mobility and turnover the changes in rank of current year are with respect to previous year. This measures the competition among FDI home countries in order to exploit the factors of production in recipient countries. This mobility and turnover are based on Bodenhorn, et al. (1990). Measure of mobility and turnover over the periods 1990 to 2009 are calculated and the significance of their difference are tested. This is done with a view to understand whether dominance pattern of FDI outflows has changed, Murthy and Deb (2008).

## **LITERATURE REVIEW**

**Jha (2003)** points out that unless FDI makes its own contributions towards technology progress, productivity spillovers and a consolidation of niche export markets, it may be considered as a part of the level of general investment in the economy. FDI needs certain types of domestic policy support in order to flourish. This paper emphasizes the view that an enlightened FDI policy, both at the national and the states level, is to be seen as part of a general policy of enhancing investment in this economy under condition of sustained production efficiency.

**Kumar (2003)** - This paper has overviewed the evolution of Indian government's attitude towards FDI, examined the trends and patterns in FDI inflows during the 1990s and has considered its impact on a few parameters of development in a comparative East Asian perspective. The paper finds a good correspondence between industrial growth rate in a year and the FDI inflows in the following year. The industrial growth seems to signal to the foreign investors about the prospects of the economy. Therefore, it appears that

policy liberalization may be a necessary but not a sufficient condition for FDI inflows.

**Rao and Murthy (2006)** “Towards Understanding the State-wise Distribution of Foreign Direct Investments in the Post-Liberalisation Period” – This paper has overviewed the state-wise distribution of foreign direct investments in the post liberalisation period. It may be said that states in the western and southern regions attracted much of the approved FDI. Even if some of the backward states attracted foreign investment proposals based on their natural resources. However the manufacturing FDI would not go to the relatively backward states except in case of extractive activities and those based on natural resources. Overall, it does appear that, in line with experience elsewhere, FDI has shown a preference for developed states. The two factors combined may accentuate the differences between the developed and backward states. The backward states may neither be in a position to offer the incentives to offset disadvantages and even if they do, the net benefit for their economies is not guaranteed. States have to improve the overall investment climate to be able to attract investment, whether domestic or foreign. The private sector would not always be forthcoming to meet this basic requirement. The role of public investment is thus obvious:

..... although attracting FDI can be an important element of a regional development strategy, the key to successful development will ultimately be sound domestic macroeconomic and structural policies, adequate and efficient domestic savings and investment and human capital accumulation, supported by sound and strong domestic institutions. FDI is not a substitute for getting domestic policies “right”. Appropriate domestic policies will help attract FDI and maximise its benefit, while at the same time removing obstacles to local business (Ögütçü, 2002). Targeting FDI, or expecting it to deliver the goods on its own, may thus not always be the right choice for the states. This is more so because, crowding in effects of FDI on domestic investment are not always guaranteed. Further, with performance requirements no longer significant and mergers and acquisitions (Mass) playing a major role in FDI flows, the need for looking at the disaggregated picture to understand the contribution of FDI to regional development becomes quite obvious.

## **EMPIRICAL RESULTS AND ANALYSIS**

FDI stands for international relocation of production from home country to host country. Production needs factors of production. The assumption is that developing and transitional economies have the potential for economic growth because they have

adequate factor of production albeit the complementary factor namely, capital. FDI represents the complementary factors of production. It is therefore felt that the breakthrough in the growth of developing economies is possible only if the complementary factor is made available. The opening of the global economy, “the setting up of WTO laying down of the rules of the level playing field” and subsequent changes in the world economy are expected to bring about a rational distribution of the most scarce complementary resource, namely, capital in the form of the FDI. Unlike portfolio investment, FDI brings along with it managerial and technological resources.

### ***Trends of FDI in Absolute Term***

Globalisation has been promoting international capital investment. We are examining the trends of outward FDI in terms of flow and stock in absolute term over last two decades.

FDI Outflows: Magnitude of world and developed countries FDI outflow has increased every year with respect to base year except in 1991-1993. Outflow from transitional countries in first half periods, is in nature of transient outflow and has no pattern but in second half, outflow has been consistently rising. However outflow from developing countries including BRICS countries has increased in every subsequent year with respect to base year. In terms of growth index, outflow from all five groups has increased. However FDI outflow from developing, BRICS countries and transitional countries has higher growth than world and developed countries outflow. However, within developing countries, growth of FDI outflow from BRICS countries has more than double of developing countries. FDI outflow from BRICS, developing and transitional countries has been increasing due competition and globalisation. Due to globalisation, liberalisation and competition, developed countries' dominance and control over global productive resources has been decreased.

The world FDI outflow increased seven times, while that of developed, developing, BRICS and transitional countries increased 5.4 times, 32 times, 84.4 times and 46.7 times respectively. East-Asian crisis has impact on developing and BRICS countries. Therefore, FDI outflow declined from these countries. Year 2000 is a threshold year. All trends indicate a jump. But in case of BRICS, the threshold is year 2001. However there is short dip in 2002. Year 2003 onwards, FDI outflow from BRICS countries increased because of world recovery till 2008. Again short dip in 2009 in case of BRICS due to global financial crisis and but revival in 2010 and 2011 (Table 1).

**FDI Outflow:**  
**Table 1: FDI Outflow (in absolute terms) – Indices and Trends**

Year	FDI in million \$								Base Year = 1990 (1992 in case of Transition Economies)				
	World	Developed economies	Developing economies	Transition economies	BRICS	World	Developed economies	Developing economies	Transition economies	BRICS			
1990	241498	229584	11914	0	1746	100	100	100	-	100			
1991	198041	184564	13477	0	2432	82	80	113	-	139			
1992	202635	177913	23156	1566	7664	84	77	194	100	439			
1993	242554	202193	39319	1042	6213	100	88	330	67	356			
1994	286888	239039	47529	320	4289	119	104	399	20	246			
1995	363241	306894	55724	624	6318	150	134	468	40	362			
1996	397770	331416	65406	947	5426	165	144	549	60	311			
1997	477507	398863	75218	3426	9326	198	174	631	219	534			
1998	689700	637994	50294	1411	8585	286	278	422	90	492			
1999	1088079	1018443	67345	2291	7333	451	444	565	146	420			
2000	1226633	1088321	135116	3195	7159	508	474	1134	204	410			
2001	747657	661828	83087	2742	11251	310	288	697	175	645			
2002	528496	476341	47484	4671	10309	219	207	399	298	591			
2003	570679	513210	46668	10802	15272	236	224	392	690	875			
2004	925716	788795	122792	14129	32612	383	344	1031	902	1868			
2005	888561	741744	132507	14310	31461	368	323	1112	914	1802			
2006	1415094	1152034	239336	23724	92862	586	502	2009	1515	5320			
2007	2198025	1829578	316863	51583	98011	910	797	2660	3294	5615			
2008	1969336	1580753	328121	60462	147591	815	689	2754	3861	8455			
2009	1175108	857792	268476	48840	117458	487	374	2253	3119	6729			
2010	1451365	989576	400144	61644	146148	601	431	3359	3936	8372			
2011	1694396	1237508	383754	73135	147345	702	539	3221	4670	8441			

Source: www.unctad.org and Authors' Estimation



**FDI Outward Stock:**  
**Table 2: FDI Outward Stock (in absolute terms) - Indices and Trends**

Year	FDI In millions \$									
	World	Developed economies	Developing economies	Transition economies	BRICS	World	Developed economies	Developing economies	Transition economies	BRICS
1990	2092927	1946273	146094	560	60863	100	100	100	100	100
1991	2345990	2184697	160315	978	64059	112	112	110	175	105
1992	2386056	2199361	186023	672	70992	114	113	127	120	117
1993	2774477	2547665	223742	3071	77003	133	131	153	548	127
1994	31110725	2830698	276518	3509	81208	149	145	189	627	133
1995	3790105	3456616	329152	4337	89370	181	178	225	774	147
1996	4305598	3916938	383233	5427	93354	206	201	262	969	153
1997	4985681	4420714	556161	8806	99060	238	227	381	1572	163
1998	5940770	5355684	574838	10247	109481	284	275	393	1830	180
1999	7218780	6482358	725705	10717	120725	345	333	497	1913	198
2000	7952878	7074435	857107	21337	133914	380	363	587	3809	220
2001	7718988	6766635	906907	45447	148673	369	348	621	8114	244
2002	7785795	6811667	909003	65126	179996	372	350	622	11627	296
2003	9916512	8823480	998159	94873	212245	474	453	683	16939	349
2004	11694927	10413692	1169747	111487	268082	559	535	801	19905	440
2005	12464847	10951817	1360935	152095	330591	596	563	932	27155	543
2006	15697204	13636336	1837998	222870	481590	750	701	1258	39791	791
2007	19272591	16367070	2517785	387736	715772	921	841	1723	69226	1176
2008	16342809	13648378	2463069	231362	622458	781	701	1686	41307	1023
2009	19325746	16152432	2834914	338399	854087	923	830	1940	60417	1403
2010	20864846	17144628	3313808	406411	1039223	997	881	2268	72560	1707
2011	21168489	17055964	3705410	407115	1114210	1011	876	2536	72686	1831

Source: www.unctad.org and Authors' estimation.

FDI outward stock: It is an accumulated FDI outflow over periods. Outward stock follows pattern of outflow. FDI stock in all four cases has increased quantitatively in every subsequent year with respect to 1990. Growth rate of stock is high in case of transitional, developing and BRICS countries respectively. However magnitude of FDI stock is much higher in case of developed countries. Therefore, more than 80 percent of international productive capitals and resources is owned and controlled by developed countries, in spite of a twenty two year period of a globalised and competitive world . Due to global financial crisis, dip in 2008 in case of all groupings. FDI outward stock from world, developed, developing, BRICS and transitional countries increased 10 times, 8.7 times, 25 times 18.3 times and 726 times respectively (Table 2).

Developed countries have ownership over productive capital resources. This is almost unchallengeable. However, due to globalization and WTO, global competition has increased for controlling over global productive resources. Due to global competitive environment, outward FDI has been significantly rising from developing countries including BRICS countries both in term of flow and stock.

Regression statistics of outward FDI in absolute terms, interestingly, shows that rate of growth are positive and highly statistically significant in each of both outflow and stock groups. World FDI outflow is increasing at 11 percent per annum during 1990-2011. The growth rate of outflow for developed, developing, transitional and BRICS countries are 10 percent, 15 percent, 28 percent and 21 percent respectively. However, outflow from transitional countries is growing at much faster rate which is 28 percent per annum. In case of FDI outward stock, growth pattern in all cases is the same as in the case of outflow, only the growth rate is different (Table 3).

**Table 3: International FDI Patterns (in absolute term) during 1990-2011**

	World	Developed Economics	Developing Economics	Transitional Economics	BRICS
	<b>FDI Outflow</b>				
Adjusted R Sq.	0.82	0.76	0.84	0.90	0.89
Coefficients	0.11	0.10	0.15	0.28	0.21
p-value	0.00	0.00	0.00	0.00	0.00
	<b>FDI Outward Stock</b>				
Adjusted R Sq.	0.98	0.98	0.99	0.97	0.94
Coefficients	0.12	0.11	0.16	0.33	0.15
p-value	0.00	0.00	0.00	0.00	0.00

Source: Authors' statistical Estimation

### ***Trends of Outward FDI in Proportionate term***

With globalisation and WTO, outward FDI in terms of flow and stock has been increased many times of absolute term for each country groups over last two decades. We are here examining the change in geography of FDI flows and stock in proportionate terms for each country grouping.

Developed countries have ownership over productive capital resources. This is almost unchallengeable. This is also reflected from table 4 and Table 5. In 1990, more than 95 percent of FDI outflows originated from developed countries. This shows that developed countries had controlled over productive capital resources. This proportion of controlling of developed countries over productive capital has been decreased over periods. However more than 73 percent of world productive capital is still owned and controlled by developed countries in 2011 (table 4). Developing countries owned and controlled less than 5 percent world capital in 1990. Due to globalisation and competition, developing countries have been owning and controlling more capital, which is around 22 percent in 2011. Share of BRICS countries has reached to around 10 percent in 2010. Outward stock has followed the same pattern of controlling over productive capital as revealed by FDI outflows. Developed countries has controlled over more than 80 percent of FDI outward stock (table 5). This means that most of FDI in terms of outflows and outward stock has been originated from developed countries. This shows dominance of developed countries over world productive capital resources. Growth index of outflow of percentage share follows pattern of outflow in absolute terms for BRICS and other developing countries.

Table 4: FDI Outflow (in percentage term) – Indices And Trends

Year	Percentage Share				Base Year = 1990 (1992 in case of Transitional)				
	Developed economies	Transition economies	BRICS	Other Developing Economies	Developed Countries	Transition Countries	BRICS	Other Developing Countries	
1990	95.07	0.00	0.72	4.21	100.00	-	100.00	100.00	
1991	93.19	0.00	1.23	5.58	98.03	-	169.89	132.45	
1992	87.80	0.77	3.78	7.65	92.36	100.00	523.25	181.58	
1993	83.36	0.43	2.56	13.65	87.69	55.57	354.37	324.16	
1994	83.32	0.11	1.50	15.07	87.65	14.43	206.85	357.96	
1995	84.49	0.17	1.74	13.60	88.87	22.22	240.64	323.03	
1996	83.32	0.24	1.36	15.08	87.64	30.81	188.73	358.13	
1997	83.53	0.72	1.95	13.80	87.87	92.83	270.19	327.73	
1998	92.50	0.20	1.24	6.05	97.30	26.48	172.20	143.63	
1999	93.60	0.21	0.67	5.52	98.46	27.25	93.24	130.99	
2000	88.72	0.26	0.58	10.43	93.33	33.70	80.75	247.75	
2001	88.52	0.37	1.50	9.61	93.11	47.45	208.19	228.19	
2002	90.13	0.88	1.95	7.03	94.81	114.35	269.87	167.06	
2003	89.93	1.89	2.68	5.50	94.60	244.92	370.23	130.66	
2004	85.21	1.53	3.52	9.74	89.63	197.50	487.39	231.36	
2005	83.48	1.61	3.54	11.37	87.81	208.38	489.84	270.08	
2006	81.41	1.68	6.56	10.35	85.64	216.94	907.87	245.83	
2007	83.24	2.35	4.46	9.96	87.56	303.67	616.90	236.47	
2008	80.27	3.07	7.49	9.17	84.43	397.27	1036.83	217.72	
2009	73.00	4.16	10.00	12.85	76.78	537.80	1382.84	305.22	
2010	68.18	4.25	10.07	17.50	71.72	549.59	1393.11	415.63	
2011	73.04	4.32	8.70	13.95	76.83	558.51	1203.07	331.37	

Source: www.unctad.org and Authors' Estimation

Table 5: FDI Outward Stock (in percentage term) - Indices and Trends

Year	Percentage Share					Base Year = 1990				
	Developed economies	Transition economies	BRICS	Other Developing Economies	Developed economies	Transition economies	BRICS	Other Developing Economies		
1990	92.99	0.03	2.91	4.07	100.00	100.00	100.00	100.00		
1991	93.12	0.04	2.73	4.10	100.14	155.72	93.90	100.75		
1992	92.18	0.03	2.98	4.82	99.12	105.24	102.31	118.38		
1993	91.83	0.11	2.78	5.29	98.74	413.58	95.44	129.87		
1994	91.00	0.11	2.61	6.28	97.85	421.55	89.77	154.18		
1995	91.20	0.11	2.36	6.33	98.07	427.60	81.09	155.35		
1996	90.97	0.13	2.17	6.73	97.83	470.97	74.56	165.33		
1997	88.67	0.18	1.99	9.17	95.35	659.96	68.32	225.14		
1998	90.15	0.17	1.84	7.83	96.94	644.54	63.37	192.35		
1999	89.80	0.15	1.67	8.38	96.56	554.75	57.51	205.79		
2000	88.95	0.27	1.68	9.09	95.66	1002.53	57.90	223.30		
2001	87.66	0.59	1.93	9.82	94.27	2200.04	66.23	241.21		
2002	87.49	0.84	2.31	9.36	94.08	3125.62	79.50	229.92		
2003	88.98	0.96	2.14	7.93	95.68	3574.97	73.60	194.61		
2004	89.04	0.95	2.29	7.71	95.75	3562.17	78.83	189.32		
2005	87.86	1.22	2.65	8.27	94.48	4559.48	91.20	202.98		
2006	86.87	1.42	3.07	8.64	93.42	5305.37	105.50	212.19		
2007	84.92	2.01	3.71	9.35	91.32	7517.67	127.71	229.60		
2008	83.51	1.42	3.81	11.26	89.81	5289.96	130.97	276.56		
2009	83.58	1.75	4.42	10.25	89.88	6543.05	151.97	251.69		
2010	82.17	1.95	4.98	10.90	88.36	7278.42	171.27	267.70		
2011	80.57	1.92	5.26	12.24	86.64	7186.45	181.00	300.58		

Source: www.unctad.org and Authors' Estimation

In terms of FDI outflow, for developed countries, adjusted R square is 43.7 percent. The growth rate is 0.9 percent and negative but significant. It means FDI outflow is decreasing at slow rate from developed countries. Adjusted R square is 52 percent and rate of growth is 9.8 percent per annum and highly significant in case of BRICS countries. In case of transitional countries, adjusted R square is 70.1 percent and growth rate is 17.1 percent and significant. However, in case other developing countries excluding BRICS, growth rate is positive but not significant (Table 6). It implies that due to globalisation and competition FDI outflow from BRICS, developing and transitional countries is increasing over a period of time. These countries have been also owning and controlling world productive capital. However, FDI outflow has been dominated and controlled by few developed countries.

Growth rate is significant in case of FDI outward stock in all cases. Growth rate is positive in case of BRICS, other developing and transitional countries but it is negative in case of developed countries. It means that outward stock is decreasing slowly from developed countries and is increasing in developing including BRICS and transitional countries. However, stock is growing at faster rate in case of transitional countries.

The net result of both indicators is that the share of developed countries is declining at a very slow rate, although these are statistically significant. The share of transitional countries is growing at high rate and also statistically significant in all four cases. However, for developing countries including BRICS, FDI outflow and outward stock are growing slowly and also significant (table 6).

**Table 6: International FDI Patterns in Percentage Term During 1990-2011**

	Developed Economics	Transitional Economics	BRICS	Other Developing Countries (Excluding BRICS)
<b>FDI Outflows</b>				
Adjusted R Sq.	0.437	0.701	0.520	0.068
Coefficients	-0.009	0.171	0.098	0.021
p-value	0.000	0.000	0.000	0.128
<b>FDI Outward Stock</b>				
Adjusted R Sq.	0.877	0.935	0.242	0.779
Coefficients	-0.006	0.216	0.027	0.043
p-value	0.000	0.000	0.012	0.000

Source: Authors' statistical estimation

### ***Dominance Pattern***

Dynamic changes in the pattern of outward FDI would result in changing ranks of different countries in terms of the outflows and outward stocks. This represents a state of competition amongst different countries. It is normally not possible for any single country to dominate FDI outward investment pattern for whole period 1990 to 2011. Even if a country is not at top for one or more years it should be possible to capture the dominating country. It is interesting to know whether there is any dominant country or a constant flux in the ranking of different countries. The index of rank dominance (IRD) is an innovative measure which tells us a coefficient that expresses the degree of dominance of an ordinal measure such as rank. IRD has further refined as a relative-Relative Index of Rank Dominance (RIRD), which measures dominance in a relative sense. This gives the proportionate weight of the rank dominance index.

Table 7 shows that most dominant country in terms of FDI outflows is China, Hong Kong SAR in case of top ten developing countries of the world during 1990-2011. The next best countries are British Virgin Islands and Singapore. The RIRD shows that FDI outflows are top heavy. The first five countries dominate the pattern of outflow such that they represent almost 60 percent of FDI outflows from developing countries. This means that the pattern of distribution of FDI outflows is highly dominating by few developing countries in case of developing countries group. In top five countries, only China belongs to BRICS countries. BRICS countries has dominated one-fourth of outflow from developing countries, three-fourth FDI outflow from other developing countries. India is at eleventh position and has share is only 2.2 percent. RIRD shows that FDI outflows are skewed in nature.

**Table 7: Index of Rank Dominance of FDI Outflows of Top Ten Developing Countries During 1990-2011**

<b>Country</b>	<b>Score</b>	<b>IRD</b>	<b>RIRD</b>
China, Hong Kong SAR	214	0.973	0.176
British Virgin Islands	143	0.650	0.118
Singapore	126	0.573	0.104
China, Taiwan Province of	118	0.536	0.097
China	118	0.536	0.097
South Korea	111	0.505	0.091
Russian Federation	106	0.482	0.087
Cayman Islands	57	0.259	0.047
Brazil	42	0.191	0.035

Malaysia	35	0.159	0.029
India	27	0.123	0.022
Mexico	23	0.105	0.019
Panama	20	0.091	0.016
Argentina	16	0.073	0.013
South Africa	14	0.064	0.012
Chile	14	0.064	0.012
Indonesia	10	0.045	0.008
United Arab Emirates	10	0.045	0.008
Nigeria	4	0.018	0.003
Venezuela	3	0.014	0.002
Saudi Arabia	2	0.009	0.002
Colombia	2	0.009	0.002
	Total	5.523	1.000

*Source:* Authors' statistical estimation

Table 8 shows that most dominant country in terms of FDI outward stock is China, Hong Kong SAR in case of top ten developing countries of the world during 1990-2011. The next best countries are China, Taiwan and Singapore. The RIRD shows that FDI outflows are top heavy. The first five countries dominate the pattern of outflow such that they represent almost 66 percent of FDI outward stock of developing countries. This means that the pattern of distribution of FDI outflows is highly dominating by few developing countries in case of developing countries group. In top five countries, only Brazil belongs to BRICS countries, which represents 12.1 percent of stock. BRICS countries has dominated one-third of outward stock of developing countries, two-third FDI outward stock controlled by other developing countries. India share is 0.2 percent only. RIRD shows that FDI outflows are skewed in nature.

**Table 8: Index of Rank Dominance of FDI Outward Stock of Top Ten Developing Countries During 1990-2011**

Country	Score	IRD	RIRD
China, Hong Kong SAR	211	0.959	0.174
China, Taiwan Province of	161	0.732	0.133
Singapore	156	0.709	0.129
Brazil	147	0.668	0.121
British Virgin Islands	124	0.564	0.102
China	106	0.482	0.088
Russian Federation	87	0.395	0.072
South Africa	85	0.386	0.070
South Korea	50	0.227	0.041



Argentina	36	0.164	0.030
Cayman Islands	15	0.068	0.012
Panama	11	0.050	0.009
Malaysia	9	0.041	0.007
Mexico	8	0.036	0.007
India	3	0.014	0.002
Indonesia	1	0.005	0.001
	Total	5.5	1

Source: Authors' statistical estimation

Within BRICS countries group, China is most dominating in terms of FDI outflow. Next best is Russian Federation. India has fifth and last position. India represents only around 44 percent of China dominance (table 9). In case of FDI outward stock, Brazil is most dominating in BRICS countries. Next best is Russian Federation. India has fifth and last position as in case of outflow. India represents only around 27 percent of Brazil dominance (table 10).

**Table 9: Index of Rank Dominance of FDI Outflow of BRICS Countries During 1990-2011**

Country	Score	IRD	RIRD
China	93	0.845	0.282
Russian Federation	87	0.791	0.264
Brazil	65	0.591	0.197
South Africa	44	0.400	0.133
India	41	0.373	0.124
	Total	3	1

Source: Authors' statistical estimation

**Table 10: Index of Rank Dominance of FDI Outward Stock of BRICS Countries During 1990-2011**

Country	Score	IRD	RIRD
Brazil	97	0.882	0.294
Russian Federation	75	0.682	0.227
China	70	0.636	0.212
South Africa	62	0.564	0.188
India	26	0.236	0.079
	Total	3	1

Source: Authors' statistical estimation

### **Ranking Pattern**

Table 11 and table 12 show that change in ranks in 1990, 1995, 2000, 2005 and 2010 top ten of developing countries in terms of outflow and outward stock respectively. The change in ranks of FDI outflows is more than that of FDI outward stock. This indicates that competition among developing countries for investing in host countries has increased in recent year.

**Table 11: Ranks of FDI Outflows of Developing Countries**

Country	1990	1995	2000	2005	2010
China, Taiwan Province of	1	5	4	9	12
China, Hong Kong SAR	2	1	1	1	1
Singapore	3	2	5	5	6
South Korea	4	3	6	7	5
China	5	8	12	4	2
Panama	6	14	22	17	18
Brazil	7	11	9	15	11
Nigeria	8	17	20	21	22
Venezuela (Bolivarian Republic of)	9	20	14	19	16
Cayman Islands	10	15	3	8	7

*Source:* Authors' statistical estimation

**Table 12: Ranks of FDI Outward Stock of Developing Countries**

Country	1990	1995	2000	2005	2010
Brazil	1	2	5	6	7
China, Taiwan Province of	2	3	3	5	6
South Africa	3	5	6	11	12
China, Hong Kong SAR	4	1	1	1	1
Singapore	5	4	4	2	4
Argentina	6	8	9	12	16
China	7	6	7	8	5
Panama	8	11	14	15	15
Mexico	9	13	15	7	9
Saudi Arabia	10	17	18	19	17

*Source:* Authors' statistical estimation

Table 13 and table 14 show that change in ranks within BRICS countries. India position has somewhat improved in recent year.

**Table 13: Ranks of FDI Outflow of BRICS Countries**

Country	1990	1995	2000	2005	2010
China	1	2	3	2	1
Brazil	2	3	2	4	4
Russian Federation	3	4	1	1	2
South Africa	4	1	5	5	5
India	5	5	4	3	3

*Source:* Authors' Estimation

**Table 14: Ranks of FDI Outward Stock of BRICS Countries**

Country	1990	1995	2000	2005	2010
Brazil	1	1	1	2	3
South Africa	2	2	2	4	5
China	3	3	3	3	2
Russian Federation	4	4	4	1	1
India	5	5	5	5	4

*Source:* Authors' Estimation

### ***Mobility and Turnover***

The Index of Rank Dominance is a summary measure and it has to be interpreted along with the Bodenhorn's Measure of Mobility and Turnover. IRD conceals dynamic changes in ranks. Bodenhorn's Measure, on the other hand captures the dynamic changes in rivalry amongst donor countries, both in terms of flows and stocks. Table 15 clearly shows that changes in ranks in stock terms are much less. This is expected because stocks are accumulated. This is statistically significant. There is decline in rivalry amongst developing country outflows. Growth rate is negative and significant at 10 percent. This is an expected result because they are not major exporters of capital. In fact, very few countries amongst developing countries may be dominating the total capital outflow and outward stock. Table 15 clearly shows that the volatility in developing country outflows is extreme.

**Table 15: Bodenhorn's Mobility and Turnover of Developing Countries**

Year	FDI Outflow	FDI Outward Stock
1991	35	3
1992	51	4
1993	45	8
1994	43	8
1995	21	1
1996	15	6
1997	23	2
1998	19	2
1999	25	6
2000	11	11
2001	32	20
2002	46	6
2003	40	4
2004	45	2
2005	33	4
2006	29	7
2007	12	2
2008	16	9
2009	25	12
2010	14	1
2011	16	7

Source: Authors' Estimation

**Table 16: Regression Statistics of Bodenhorn's Mobility and Turnover of Developing Countries During 1990-2011**

	FDI Outflows	FDI Outward Stock
Adjusted R Sq.	0.127	-0.048
Coefficient	-0.032	0.008
P Value	0.063	0.786

Source: Authors' Statistical Estimation

There is decline in rivalry amongst developing country outflows and it is significant at 10%. This is an expected result because they are not major exporters of capital. In fact, very few countries amongst developing countries may be dominating the total capital outflow and outward stock. Therefore, in Table 16 we find that the competition amongst developing country outflows is not significant.

## CONCLUSION

The paper has analyzed capital flows in terms of outward FDI of developing countries including BRICS countries in stock and flow terms. The purpose of the paper was to

investigate patterns of outward FDI from developing countries over a period of 22 years, since liberalization (1990). Growth index indicates the increase of outward FDI in subsequent year with respect to base year. In absolute term, FDI has been increased many times with respect to base year 1990 in each group countries. World FDI outflow is growing at 11 percent per annum. However, FDI outflow from developing and BRICS countries is growing at 15 percent and 28 percent respectively. It means growth rate of FDI outflow from developing is higher than world. Outward stock follows growth pattern of outflows. In percentage term, growth index of developed countries has declined in both flow and stock term. However, growth index of transitional, BRICS and developing countries other than BRICS countries is positive and significant in both flow and stock term. Growth rate of FDI outflow from BRICS countries is higher than developing countries other than BRICS countries. But in case of outward stock, growth rate of BRICS countries is lower than developing countries other than BRICS. This mean that FDI outflows from BRICS countries has increased in recent years. China, Hong Kong SAR is a most dominating in both flow and stock amongst developing countries. Top five countries have around 60 percent control and dominance in case of outflow. BRICS countries is controlling one-fourth of developing countries outflows. India is at eleventh position and has 2.2 percent share of outflow of developing countries. In terms of outward stock, top five countries have around 66 percent dominance amongst developing countries. BRICS countries represents one-third of developing countries FDI outward stock. India is at fifteenth position and has share is 0.2 percent only. Dominance patterns among developing countries are not stable, when seen with the Bodenhorn's measure of mobility and turnover. Mobility and turnover is higher in case of outflow than stock. In case of outflow, growth rate is 3.2 percent and it is negative and significant at 10 percent. It means there is decline in competition amongst developing countries outflows. And FDI outflow is dominated and controlled by few developing countries within developing countries group. This is an expected result because they are not major exporters of capital. In stock terms, there is a less than one percent growth in competition amongst developing countries. But it is not significant. In fact, very few countries amongst developing countries may be dominating the total capital outflow and outward stock. In general, outward FDI has been increasing from developing or BRICS countries, but these countries are not leading in global outward FDI.

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## FINANCIAL DETERMINANTS OF CORPORATE CREDIT RATINGS IN INDIA

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*Credit rating agencies help in bridging the information gap between investors and issuers. The rating agencies provide an opinion on the creditworthiness of the debt instruments. They use qualitative and quantitative information to assign ratings-some of which is not easily available in public domain. Apart from this, there is an element of subjective judgment of the team of experts who arrive at a rating. This makes it very difficult to understand the ratings and the measures used by the rating agencies. A number of research studies have attempted to study credit ratings with the help of publicly available information. In Indian context, most of the studies evaluate the performance of rating agencies in terms of their usefulness to individual and institutional investors. The present paper attempts to empirically analyze the relationship of financial characteristics and credit ratings. Multinomial logistic regression model has been used on a sample of 245 companies in three industries of the manufacturing sector of India- Textile, Steel and Paper. The model depicts a significant relationship between the credit ratings and the selected variables. The independent variables that have been found to be significant determiners of credit ratings are Interest coverage ratio, leverage ratio, profitability ratio and size. The model is able to classify ratings with reasonable accuracy.*

**Key words:** Credit Ratings, Financial Ratios, Multinomial Logistic Regression

### INTRODUCTION

The financial markets play the role of an intermediate in a market economy. They arbitrate between an investor in search of investment avenues and the issuer in search of credit. The efficiency of the financial markets depends on the availability of reliable data. There are various sources of information like offer document of the issuer(s), research reports of market intermediaries and media reports. Nevertheless, it is the assessment of the credit rating agencies in the form of credit ratings that is utilized as a tool for risk assessment by the investors.

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According to Standard and Poor's Rating Services<sup>3</sup>, a credit rating is a symbolic indicator of the current view of the relative capacity of the issuer to service its debt obligation in a timely manner, with specific reference to the instrument being rated. It is a qualified assessment and formal evaluation of company's credit history and capability of repaying obligations.

The Credit Rating Agencies not only specialize in accumulating information, they also have an access to non-public information. Therefore, they are able to provide independent assessments of the probability of default by companies, governments and the providers of a wide range of financial instruments. Even if they merely collate existing data, they offer service in summarizing the existing disjointed information, and giving an assessment. Thus, the credit rating agencies provide vital information for investors and regulators on one hand and ease the access of funds for the issuer on the other.

There are four international credit rating agencies: Moody's Investors Service, Inc., Fitch, Inc. Standard and Poor's and Duff and Phelps. In India, the ratings industry has been built up to its present position over a period of twenty five years. The ratings have been operating in India since 1988. There are five credit rating agencies recognized by Securities and Exchange Board of India (SEBI). CRISIL (Credit Rating and Information Services of India Limited), ICRA (Investment Information and Credit Rating Agency of India Limited) and Fitch India have collaborative arrangements with S&P, Moody's and Fitch respectively. CARE (Credit Analysis & Research Ltd.) is promoted by IDBI & Canara Bank. Brickworks, the latest entrant, was established in 2008. The Indian credit rating industry is next to United States of America in terms of number of ratings issued.

The growing importance of the credit rating system all over the world is due to many factors such as an increasing role of capital and money markets, increased securitization of borrowing and lending consequent to disintermediation, globalization of the credit market, continuing growth of information technology, growth of confidence in the efficiency of the market mechanism, etc. However, the credit rating agencies are currently facing a reputational crisis. This has been due to their inability to predict the 1997–1998 Asian crises, 2007-09 subprime crisis and the bankruptcies of Enron, World Com and Parmalat. The ongoing sovereign debt crisis in the Euro zone has further raised apprehensions about the credibility of credit rating agencies and is prompting legislators

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<sup>3</sup> Credit ratings <http://www.standardandpoors.com/ratings> retrieved on September 13, 2013



worldwide to regulate rating agencies. It is crucial that the credit rating agencies maintain their reputation as reliable and objective source of information. There has been a lot of discussion about the reliability and relevance of the information provided by credit ratings. Closer to home, big corporate giants like Satyam and non banking finance companies floated by C R Bansali (CRB scam) with favorable credit ratings and audit reports collapsed causing losses to many small investors. The accuracy and timeliness of ratings have been debatable.

The credit rating agencies claim that they use qualitative and quantitative information to assign ratings-some of which is not easily available in public domain. Apart from this, there is an element of subjective judgment of the team of experts who arrive at a rating. This makes it very difficult to understand the ratings and the measures used by the rating agencies. The present research work is an attempt to understand credit ratings with the help of financial determinants.

The rest of this paper is organized as follows: The next section discusses the related literature. Section 3 elaborates upon the research methodology of the study. It briefly discusses the variables and method of investigation used in the study. The analysis and interpretation of results is presented in Section 4. The last section presents the conclusion and policy implications.

## **REVIEW OF EMPIRICAL STUDIES**

The econometric methods for analyzing categorical dependent variables have evolved over a period of time. The statistical techniques include multiple regression analysis (Horrigan, 1966; Pogue and Soldofsky, 1969; West, 1970), multiple discriminant analysis (Pinches and Mingo, 1973, 1975), ordered linear probit model (OLPM) (Kaplan and Urwitz, 1979; Blume et al, 1998; Poon, 2003; Amato and Furfine, 2004; Roje, 2005; Gray et al, 2006; Hwang et al., 2008; Purda, 2008; Tanthanongsakkun and Treepongkaruna, 2008). There are few which have used machine learning techniques, for example, Artificial neural networks (Kumar and Haynes, 2004).

The earlier studies (Horrigan, 1966; Pogue and Soldofsky, 1969; West, 1970) treated the dependent variable i.e. credit ratings as a continuous variable. This was criticized in subsequent studies. The multiple discriminant analysis technique was the most commonly used in earlier studies (Pinches and Mingo, 1973, 1975) to predict credit ratings. The main drawback of the technique was that it does not consider the ordinal

nature of bond ratings. It assumes that they are measured on a nominal scale and also that independent variables follow a multivariate normal distribution which is not the case (Kaplan and Urwitz, 1979). However, studies using MDA as prediction technique have been able to predict ratings for approximately 70% of the bonds considered correctly.

The later studies (Kaplan and Urwitz, 1979; Blume et al, 1998; Poon, 2002; Amato and Fur fine, 2004; Roje, 2005; Gray et al, 2006; Hwang et al, 2008; Purda, 2008; Tanthanongsakkun and Treepongkaruna, 2008) used ordered probit model. This is found to have theoretical advantage of treating credit ratings as ordinal discrete variables.

All studies pointed out that credit rating agencies use both quantitative and qualitative information to arrive at credit ratings. It has been seen that earlier studies have been able to develop models that could predict 60 to 75% of the actual bond ratings. A higher percentage of correct predictions has not been possible because of the subjectivity involved in the rating process. The sample size varied from as small as 30 ratings (Rushinek and Rushinek, 1987) to as large as 7324 ratings (Blume et al, 1998). The size of a sample is important especially if the results are to be generalized. Both ordinal logistic and ordinal probit, using maximum likelihood estimates, require a larger sample than ordinary least squares method.

Most of these studies have been conducted in the US market, Australia, China and Nordic countries. With reference to India, most of the studies evaluate the performance of rating agencies in terms of their usefulness to individual and institutional investors in India. The research work by Raghunathan and Verma (1992) and a report (2009) by National Institute of Security Management, Mumbai focus on this aspect. A Report on Comprehensive Regulation for Credit rating agencies(2009) and Ohta H. (2010) focus on how regulatory framework can be made more comprehensive for a more effective and efficient operation of Credit rating agencies in India. The present research work attempts to study the relationship between some financial variables and credit ratings in Indian manufacturing sector.

## **RESEARCH METHODOLOGY**

This section describes the dependent and the independent variables. This is followed by the discussion on statistical and econometric model used in the study.

### 3(A) Dependent Variable

The dependent variable (Y) is the long term rating of a company assigned by credit rating agencies in India as on July 1, 2012. The long term ratings for the selected companies were obtained from Centre for Monitoring Indian Economy (CMIE)<sup>4</sup> database. The long term credit ratings are issued in alphabetic form and are categorized in six investment grades and four non-investment grades. They further classify companies into subcategories by attaching a suffix '-' or '+' to indicate the relative position of the issuer within the same category. The ratings have been converted to a numerical score for the purpose of statistical analysis. The present study focuses on broad categories. Therefore, positive or negative signs suffixed to ratings are ignored while assigning numerical values. As there were a few observations in the highest categories (AA, AAA) and the lowest categories (D, C), they were merged with the nearest category. Therefore, the present study considers 6 categories of credit ratings ranging from 1 to 6, where 1 denotes the lowest rating and 6 denotes the highest rating. The lowest value is assigned to the lowest rating (highest credit risk). The categorization of the credit ratings into numeric classes, in ascending order, is presented as follows:

$$Y_i = \begin{cases} 1 & \text{if rating} = D, C \\ 2 & \text{if rating} = B \\ 3 & \text{if rating} = BB \\ 4 & \text{if rating} = BBB \\ 5 & \text{if rating} = A \\ 6 & \text{if rating} = AA, AAA \end{cases}$$

The dependent variable ( $Y_i$ ) includes the ratings assigned to all bonds, non convertible debentures, and other debt instruments (excluding public deposits) with original maturity exceeding one year.

### 3(B) Independent Variables

There are several studies (Gray, 2003, Hwang, 2009) that have empirically proved the relevance of accounting and financial variables in the determination of credit ratings.

<sup>4</sup> It is considered India's largest and most reliable database on the financial performance of Indian companies. It was established in 1976 and is a leading business information company.

The present study includes only those financial indicators that have been used either in explaining credit ratings in the extant literature or they are considered relevant by the rating agencies. The majority of these indicators are in the form of ratios. The use of financial ratios facilitates the comparison of financial indicators of companies of different size. Ratios are helpful in defining broadly a company's position relative to rating categories.

In the following paragraphs, the definition, measure and the relevance of the selected financial ratios and size in the context of credit ratings have been discussed:

- a. *Interest Coverage Ratios* measure the company's ability to service principal and interest payments. A high interest coverage ratio translates into high credit ratings. The measure of the interest coverage that has been found to be significantly associated is the ratio of earnings before interest, tax, depreciation & amortization to interest. The following ratio has been used for further analysis.

$$\text{Interest Coverage Ratio} = \text{EBITDA} / \text{Interest}$$

The empirical hypothesis that is tested in the present study is that interest coverage ratio is directly related to the credit ratings.

- b. *Leverage ratios* indicate the financing structure of a company. Higher the leverage, smaller is the cushion for adverse events. The measure of the leverage that has been found to be significantly associated with credit ratings is the ratio of debt to equity. The following ratio has been used for further analysis.

$$\text{Leverage ratio} = \text{Debt} / \text{Equity}$$

Debt includes short term as well as long term debt and Equity is measured by the total market value of preference and equity shares. The empirical hypothesis that is tested in the present study is that leverage ratio is inversely related to the credit ratings.

- c. *Profitability ratios* measure the performance of a company in terms of its ability to generate earnings to cover expenses in a particular period. Higher profitability translates into higher equity value and credit ratings of a firm. There are three measures of the profitability ratios that have been found to be significantly associated with credit ratings. The following ratios have been used for further analysis.

$$\text{Profitability ratio}(1) = \text{PBITDA}/\text{Sales}$$

$$\text{Profitability ratio}(2) = \text{PBIT}/\text{Average Total Assets}$$

$$\text{Profitability ratio}(3) = \text{Std deviation of earnings}/\text{Total assets}$$

These three ratios provide useful insights into financial health and performance of the company. While PBITDA to Sales ratio is an indicator of operating performance, PBIT to Average Total Assets is an indicator of how efficiently a company manages its assets to earn its profits. The earning variability ratio indicates the extent of stability a company has with respect to its profits and a high earning variability ratio is an indicator of bad financial health. The empirical hypothesis that is tested in the present study is that PBITDA/Sales and PBIT/Average Total Assets ratios are directly related to the credit ratings. However, earning variability is inversely related to the credit ratings.

- d. *Liquidity ratios* help to assess the company's ability to convert its current assets into cash to cover its debts. A comfortable liquidity ratio is viewed favorably by the rating agencies. The measure of liquidity that has been found to be significantly associated with credit ratings is the cash ratio. The following ratio has been used for further analysis.

$$\text{Liquidity ratio} = (\text{Cash} + \text{Marketable securities})/\text{current liabilities}$$

The empirical hypothesis that is tested in the present study is that liquidity ratio is directly related to the credit ratings.

- e. *Turnover ratios* reflect the efficiency with which a company's management employs its assets. The turnover ratios have not been found to be significantly associated with credit ratings; therefore, they have been excluded from the final analysis.
- f. *Size* is an important consideration as larger companies have advantages in terms access to managerial expertise, economies of scale and a diversified product portfolio. All these attributes translate into a stronger competitive position. The size of a company is measured by the average of total assets of the company.

$$\text{Size} = \text{Average Total Assets}$$

The empirical hypothesis that is tested in the present study is that size is directly related to the credit ratings.

**3(C) Multinomial logistic regression<sup>5</sup>**

This technique has been used to investigate the impact of the explanatory variables on the credit ratings. The credit ratings,  $Y_i$ , of a company  $i$ , ( $Y_i$ ) have been studied as a function of the explanatory variables in the following model:

Credit Ratings ( $Y_i$ ) =  $f$ ( financial characteristics, size and industry)

Logistic regression models the probability of one of the two outcomes using the independent variables. The logistic regression equation is as follows: Logistic regression models the probability of one of the two outcomes using the independent variables. The logistic regression equation is as follows:

$$\text{Log}(\text{Prob}(Y_i^*) / \text{Prob}(Y_k^*)) = \alpha_i + \beta_j X_j$$

Where  $\text{Log}(\text{Prob}(Y_i^*) / \text{Prob}(Y_k^*))$  is the log of odds of  $i$  outcomes with respect to a referent outcome  $k$  ( $i$  varies from 1 to  $k-1$ ).

This can be presented as follows:

$$\log \frac{\text{Pr}(Y_i^*=1)}{\text{Pr}(Y_i^*=k)} = \alpha_1 + X_j \beta_{1j}$$

$$\log \frac{\text{Pr}(Y_i^*=2)}{\text{Pr}(Y_i^*=k)} = \alpha_2 + X_j \beta_{2j}$$

.....

$$\log \frac{\text{Pr}(Y_i^*=k-1)}{\text{Pr}(Y_i^*=k)} = \alpha_{k-1} + X_j \beta_{k-1j}$$

The probabilities of each category can be found by exponentiating the log of odds ( $\text{Exp}(\alpha_i + \beta_j X_j)$ ) as shown below:

$$\text{Pr}[Y_i^* = 1] = \frac{\exp^{\alpha_1 + X_j \beta_{1j}}}{1 + \sum_{i=1}^{k-1} \exp^{\alpha_i + X_j \beta_{ij}}}$$

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<sup>5</sup> Flom P.L. (n.d.) National Development and Research Institutes, Inc. Multinomial and ordinal logistic regression using PROC LOGISTIC. Retrieved on May 7,2013 from <http://www.nesug.org/proceedings/nesug05/an/an2.pdf>

$$\Pr[Y_i^* = 2] = \frac{\exp^{\alpha_i + X_j \beta_{2j}}}{1 + \sum_{i=1}^{k-1} \exp^{\alpha_i + X_j \beta_{ij}}}$$

.....

$$\Pr[Y_i^* = k - 1] = \frac{\exp^{\alpha_i + X_j \beta_{(k-1)j}}}{1 + \sum_{i=1}^{k-1} \exp^{\alpha_i + X_j \beta_{ij}}}$$

Multinomial logistic regression is an extension of the binary logistic regression. It generalizes logistic regression by allowing more than two outcomes of dependent variables which may be non-metric: nominal or ordinal. The independent variable may be metric or non metric. It describes polytomous responses by a sequence of binary models. If the ordinal dependent variable is divided into k categories, it compares the probability of being in each of the (k-1) categories compared to a reference category k.

**ANALYSIS AND INTERPRETATION OF RESULTS**

The preliminary investigations included correlation statistics, descriptive statistics and measures of association (Table 4, 5 and 6 in endnotes). The correlated variables are identified using correlation matrix and variance inflation factor. Thereafter, measures of association are used to select the financial variables for the final model. The financial variables selected for the final models included one interest coverage ratio, one leverage ratio, three profitability ratios, a liquidity ratio, a size and industry variable. The variables are transformed since they are highly skewed, possessed a high range and variance using data transformation techniques. The data is also checked for outliers and influential cases. As a result of this, six cases are excluded from the final sample.

A frequency distribution of ratings assigned to the companies in the sample is as follows:

**Table 1 Frequency distribution of ratings assigned in the given sample**

Ratings code	Ratings	Frequency	Percent
1	D,C	36	14.7%
2	B	21	8.6%
3	BB	64	26.1%
4	BBB	72	29.4%
5	A	36	14.7%
6	AA,AAA	16	6.5%
		245	100%

Source: On the basis of SPSS output

As can be seen from the above table, 50.6% of the ratings are in the investment grade (BBB and above) and 49.4% are in the speculative grade.

The main objectives of the research are to find out the determinants of credit ratings and empirically investigate their significance using the multinomial logit regression methodology. The regression analysis examines the nature and direction of relationship between the credit ratings and independent variables with respect to the research hypothesis. Multinomial logistic regression with credit rating as dependent variable and the eight predictors (seven selected explanatory variables discussed above and a dummy variable for industry where textile, paper and steel are coded as 1, 2 and 3 respectively) are examined in the model. Multinomial logistic regression is an extension of the (binary) logistic regression and has been presented in the following equation:

$$Y_i^* = \log \frac{\Pr(Y=j)}{\Pr(Y=k)} = \alpha_i + \beta_j X_j$$

The left hand side gives the log of odds of being in a category as compared to the referent category. In the given equation, j= categories (1, 2....6) of credit rating, Y and k is the referent category. The exponent of the log of odds (Exp ( $\beta$ )) is taken to interpret in terms of odds ratio (a ratio of an outcome to the other). It indicates how different predictors affect the likelihood of being in each category versus the referent category. The results of the model have been discussed and interpreted in the following paragraphs:

**Table 2: Likelihood Ratio Test and Pseudo R-Square results**

Explanatory Variables	-2log likelihood	p-value
EBITDA/Interest	541.133	.002
Debt /Equity	551.147	.000
PBITDA/Sales	524.787	.562
PBIT/Average Total Assets	525.581	.001
Std deviation of earnings/Total assets	542.297	.740
Cash ratio	524.412	.682
Average Total Assets	627.199	.000
Industry	537.144	.116
Overall model fit		.000
Pseudo R-square		.72

On the basis of likelihood ratio test, the model with the eight explanatory variables depicts significant relationship between the credit ratings and the selected predictors. The Nagelkerke  $R^2$  is 72% which implies that the selected variables explain approximately 72% of the variation in the outcome variable i.e. credit ratings. The four



independent variables that have been found to be significant determiners of credit ratings are interest coverage ratio, leverage ratio, profitability ratio and size. The results indicate that rating agencies place more importance on the ability of the issuer to judiciously use its capital employed (Return on Assets) rather than other aspects of profitability like operating performance or earning variability. On examining the mean values of operating performance (PBITDA/Sales) and earning variability (Std deviation of earnings/Total assets) across all the categories (Table 6, Endnotes) a clear monotonic relationship (on expected lines) between these two variables and credit ratings is observed. This indicates that these factors are relevant but do not significantly influence the rating decisions. The findings reveal that liquidity is not significantly related to credit ratings. This substantiates the empirical evidence (Gopalan et al, 2009) that rating agencies tend to underestimate the liquidity risk. The results also do not find industry to be a significant variable. This is because all the three industries belong to the manufacturing sector and rating agencies investigate common set of ratios.

### Classification Results

The findings support the hypothesis that the model with interest coverage, financial leverage, profitability, operating performance, earning variability, liquidity, size and industry as independent variables for determining credit ratings is valid. The accuracy of the multinomial logit regression model in predicting the credit ratings with the help of the selected financial variables can be found by cross tabulation of observed credit ratings and predicted credit ratings. The classification results have been presented in the following table:

**Table 3: Classification table**

Observed	Ratings classified by the model						%Correct
	C,D	B	BB	BBB	A	AA,AAA	
C,D	22	1	6	6	1	0	61.1%
B	6	2	9	4	0	0	9.5%
BB	3	1	47	12	1	0	73.4%
BBB	2	0	8	55	7	0	76.4%
A	2	0	0	8	25	1	69.4%
AA,AAA	0	0	1	1	4	10	62.5%
	14.3%	1.6%	29.0%	35.1%	15.5%	4.5%	65.7%

Source: On the basis of SPSS output

The proportional by chance accuracy rate is computed by squaring and summing the proportion of cases in each category in the given sample ( $0.143^2 + 0.086^2 +$

$0.261^2 + .294^2 + .147^2 + .065^2 = .208$ ) (From Table 1). The proportional by chance accuracy criteria is 26% ( $1.25 \times 20.8\% = 26\%$ ). The given model is considered useful as it makes correct classifications to the extent of 65.7% with maximum correct classifications (76.4%) made in the fourth category (BBB) followed by third (73.4% in BB) and fifth category (69.4% in A). It is also observed that 23% of ratings missed the perfect classifications by only one category. Therefore, the given model is able to classify with reasonable accuracy.

## CONCLUSION

The multinomial logit regression model is applied on a sample of 245 companies. On the basis of likelihood ratio test, the model with the 8 selected explanatory variables depicts significant relationship between the credit ratings and the selected predictors. The Nagelkerke  $R^2$  is 72% which implies that the selected variables explain approximately 72% of the variation in the outcome variable i.e. credit ratings. There are four independent variables found significant determiners of credit ratings – interest coverage ratio, leverage ratio, profitability ratio and size.

The given model is considered useful as it is able to correctly classify 65.7% with maximum correct classifications (76.4%) made in the third category (BBB) followed by second (73.4% in BB) and fourth category (69.4% in A). It is also observed that 23% of the ratings missed the perfect classification by only one category. Therefore, the model is able to classify with reasonable accuracy. Further, it is found that the proportion of correct classifications is similar across the three manufacturing industries (Textile- 66%, Paper -62% and Steel- 64%). This implies that the model with financial variables holds well across the three industries.

The study offers the corporate management a rating yardstick against which they can assess themselves and act as guidelines for the firms in the quest for a rating solicitation. The empirical results with respect to financial characteristics may be used as an apparatus to appraise the financial situation of the business counterparts, suppliers and customers. The research findings have equally important implications for the investors. The information asymmetry is one of the reasons for the lack of development in the corporate bond market in India. An investor has neither the means nor the capability to evaluate the creditworthiness of an issuer. He is completely dependent on the credit rating of the debt instrument for an overall assessment of a company's credibility. This research can provide guidance to the investors to interpret ratings and make the right investment decision. There is a danger in overemphasizing

the importance of credit ratings since their ability to predict financial defaults has come under scanner in the wake of recent financial failures. The results depict that it is possible to capture the rating method employed by rating agencies to a large extent if suitable financial variables are included. Therefore, it is possible that a company may time their bond issues when they have impressive financial ratios in the immediate past and obtain a good rating. Thus, there is a need to re-evaluate the role of credit ratings. A credit rating should not be understood as a guideline to investment by investors and institutions with relatively long planning horizons. It is recommended to diversify across all rating groups if the information obtained through models developed in the study indicates sound overall health.

**Endnotes**

**Table 4 Measures of Association for the selected variables**

S.no.	Explanatory variable	Description	Somers'd (p-value)	Gamma (p-value)
1.	Interest Coverage	EBITDA/Interest	.418 (.000)	.519 (.000)
2.	Leverage	Debt /Equity	-.301 (.000)	-.375 (.000)
3.	Profitability	PBITDA/Sales	.285 (.000)	.354 (.000)
4.	Profitability	PBIT/Average Total Assets	.367 (.000)	.457 (.000)
5.	Earning Variability	Std deviation of earnings/Total assets	-.329 (.000)	-.391 (.000)
6.	Liquidity	Cash ratio	.172 (.000)	.216 (.000)
7.	Size	Average Total Assets	.279 (.000)	.352 (.000)

Source: On the basis of SPSS output

**Table 5: Correlation matrix of the transformed explanatory variables**

	Independent variables	2	3	4	5	6	7	8
1.	EBITDA/Interest	1						
2.	Debt /Equity	-.360**	1					
3.	PBITDA/Sales	.293**	-.120	1				
4.	PBIT/Average Total Assets	.464**	-.323**	.604**	1			
5.	Std deviation of earnings/Total	-.277**	.386**	-.333**	-.496**	1		
6.	Cash ratio	.380**	-.214**	.262**	.208**	-.200**	1	
7.	Average Total Assets	.173**	.015	.338**	.118	-.091	.179**	1

\*\*Correlation is significant at the .01 level(2 tailed)

**Table 6: Descriptive statistics of the transformed variables**

	EBITDA/ Interest	Debt / Equity	PBITDA/ Sales	PBIT/Average Total Assets	Std deviation of earnings/ Total assets	Cash ratio	Size
<b>C,D</b>							
Mean	2.57	302.49	16.76	13.32	2.27	0.71	3.31
Median	2.58	279	17.24	12.56	2.23	0.68	3.33
Std. Deviation	0.15	159.63	6.52	5.46	0.54	0.34	0.37
Skewness	-0.68	-0.03	-0.24	0.4	1.64	0.33	0.06
Kurtosis	0.69	-1.29	-0.27	0.98	4.47	-0.6	-0.85
Minimum	2.14	0	0.87	0.93	1.45	0.1	2.63
Maximum	2.86	500	28.59	29.2	4.3	1.44	4.05
<b>B</b>							
Mean	2.7	271.51	18.71	15.9	2.2	0.69	3.17
Median	2.66	207.5	18.43	16.31	2.11	0.65	3.17
Std. Deviation	0.17	149.46	4.51	3.65	0.55	0.22	0.53
Skewness	1.58	0.25	-0.16	-0.37	0.68	0.31	-0.18
Kurtosis	3.95	-1.13	-0.84	-0.47	-0.30	1.17	-1.30
Minimum	2.44	22.75	10.29	7.84	1.49	0.18	2.14
Maximum	3.25	500	25.88	21.29	3.39	1.19	3.83
<b>BB</b>							
Mean	2.67	261.99	19.47	17.74	2.09	0.72	3.10
Median	2.66	211.63	18.98	17.69	1.98	0.72	3.13
Std. Deviation	0.08	159.00	4.55	3.48	0.62	0.29	0.47
Skewness	0.50	0.35	0.94	-0.58	0.94	0.44	0.16
Kurtosis	-0.02	-1.27	1.80	2.77	1.23	1.18	0.2
Minimum	2.53	0	8.45	4.1	0.67	0	2.19
Maximum	2.88	500	34.88	25.4	4.04	1.69	4.58

<b>BBB</b>							
Mean	2.79	195.49	21.54	19.35	1.86	0.77	3.45
Median	2.76	185	21.01	18.87	1.77	0.73	3.43
Std. Deviation	0.19	110.54	5.75	3.67	0.49	0.38	0.52
Skewness	2.23	1.09	1.38	0.06	0.90	0.47	0.43
Kurtosis	8.42	1.26	4.17	-0.07	0.48	-0.11	0.49
Minimum	2.47	8.5	11.66	10.36	1.09	0.1	2.44
Maximum	3.75	500	46.61	28.04	3.34	1.82	5.15
<b>A</b>							
Mean	2.86	147.95	25.17	21.72	1.61	0.97	3.95
Median	2.84	141.75	23.23	19.80	1.59	0.91	3.88
Std. Deviation	0.23	87.78	7.88	6.20	0.38	0.40	0.55
Skewness	1.23	0.52	0.56	1.40	0.56	0.55	0.48
Kurtosis	2.72	-0.42	0.74	2.64	-0.25	-0.66	0.56
Minimum	2.37	22	7.21	8.9	0.99	0.35	2.85
Maximum	3.56	351.25	45.87	40.34	2.56	1.82	5.37
<b>AA,AAA</b>							
Mean	3.05	101.05	28.75	23.65	1.60	1.13	4.60
Median	2.98	82.87	28.85	23.12	1.54	1.16	4.62
Std. Deviation	0.34	74.77	8.55	7.24	0.60	0.40	0.75
Skewness	0.62	1.31	0.12	0.14	1.59	-0.06	-1.03
Kurtosis	-0.03	1.38	0.77	-0.31	4.69	-0.7	1.86
Minimum	2.54	6	10.54	10.76	0.68	0.4	2.72
Maximum	3.75	281.75	45.38	37.98	3.36	1.82	5.81

Source: On the basis of SPSS output

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## **OPERATIONAL EFFICIENCY AND PROFITABILITY IN AUTOMOBILE COMPANIES – AN ANALYSIS**

Praveen Jain\*

*The evaluation of efficiency or profitability is really a ticklish task. Large companies have not only to measure up to the profitability parameters and working capital standards but also to fulfil social obligations. However, in fulfilling these obligations the profitability of automobile companies is affected. The diverse considerations and objectives influencing the function of automobile companies render an evaluation of their performance specially is difficult. In common parlance the size of a company as represented by its fixed assets and profits is taken as a rough yardstick of its performance. This is obviously unsatisfactory and a broader and more comprehensive scale of assessment is necessary. Keeping all this in view the concept of a composite index has been explored in this study. It is based on certain indicators which will suitably represent the varied aspects of the performance of automobile companies.*

**Key words** – Ratios, Composite Index, Efficiency, Visualized, Operational Efficiency Profitability

### **INTRODUCTION**

#### **Composite Index – Problems and Limitations**

The composite index of efficiency visualized to measure the performance of automobile companies will naturally have certain problems and limitations. For example, such an index may not have the smoothness of index numbers of prices and production. The difficulty begins with the meaning attached to the term operational efficiency and in a way the situation is more or less analogous to defining the term capacity in connection with an industrial unit while constructing an index of capacity utilization. There is, in addition, the problem of choosing appropriate indicators of operational efficiency. These indicators must be relevant and quantifiable. It is no use having ethereal indicators for which it may not be possible to collect data. Also the choice of indicators even if based on an expert knowledge of the subject will be subjective to some extent. In as much as experts also differ among themselves, any chosen set of indicators is bound to evoke criticism of one sort or another.

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## INDICATORS

A set of nineteen indicators has been chosen for the present study. These indicators can be broadly grouped under four heads, namely, (A) profitability, (B) working capital, (C) fixed assets and (D) social performance.

Under the group of profitability, the following five indicators are taken:

1. Operating Profit
2. Profit after Tax and Investment
3. Return on Capital Employed
4. Profit Margin Ratio
5. Return on Equity Shareholders' Funds

Under the group B, of working capital position, the following seven indicators are taken:

1. Inventory turnover Ratio
2. Inventory to Working Capital Ratio
3. Debtors Turnover Ratio
4. Current Ratio
5. Quick Ratio
6. Working Capital Turnover Ratio
7. Operating Cycle

Under group C, of fixed assets situation, the following five indicators are taken:

1. Net fixed Assets
2. Fixed Assets to Net worth Ratio
3. Fixed Assets (net) to long-term Funds Ratio
4. Sales to Fixed Assets (net) Ratio
5. Ratio of Depreciation to Gross Block

Under group D, of social performance, the following two indicators are taken:

1. Net value Added
2. Application of value Added

The indicators have been chosen keeping in view the availability of requisite information. A notable point about the choice of indicators is that they do not represent



either the first or the final choice. In a way they are the outcome of a series of experiments done with many more indicators, each of which satisfied the broad analytical consideration referred to earlier and hence became eligible for inclusion. Their collective performance is another important aspect and viewed thus some indicators had to be dropped or replaced while a few other were combined or modified otherwise. Yet another point to note is that an indicator which may be considered appropriate today may cease to be so in future. When the variation in an indicator is likely to come to an end for one reason or another, the indicator becomes obsolete and the search for another appropriate indicator has to begin.

A new indicator which becomes relevant on the grounds of policy or other considerations has to be inserted provided data also becomes available for it. Thus the set of indicators once fixed does not become sacrosanct for all times.

## **DATA**

Data required to construct selected indicators for each of the nine automobile companies has been taken from official sources such as annual reports of the companies and pertains to the period from 2004-05 to 2013-14. The automobile companies have been coded suitably and these code numbers are referred to in the results.

## **METHODOLOGY**

Given the basic data needed, there are at least two methods of measuring the indicators for each of the automobile companies included in the study. According to the first method, the measurement is by way of marginal or incremental ratios worked out for the period chosen. For the other method, the average ratios computed for the terminal year of the study period of 2013-14 constitute the matrix of observations.

Both the methods have their merits and limitations. Whereas average ratios represent the levels attained, indicator-wise incremental ratios reflect the directions and related magnitudes of changes in each of the selected indicators during a given period. From the point of view of stability, the average ratio is at times preferred, particularly when either the data used represents flows such as profits, working capital etc which are more volatile or where time intervals involved are relatively short. However, in the present case incremental ratios are particularly relevant since they show the degree of attainment of the objectives which these automobile companies were expected to achieve.

Even when indicators are chosen and the appropriate method of measurement is decided, the problem of adding them up through a weighting diagram remains. The appropriate procedure is to determine the weights of individual indicators according to their individual contributions to operational efficiency. This is one of the most difficult parts of the whole exercise. In the case of a consumer price index, one knows or at least determines the weight which logically should be in proportion to the household expenditure on items which generally go to make up the basket of consumption. In an industrial production index weights are proportional to the value added by the industrial items. Such an obvious choice of weights is not possible in the case of an operational efficiency index.

Under the circumstances, there are two possible approaches to ascertaining the performance of individual companies. They are (a) the simplistic method of ranking and (b) the ranking based on factor scores obtained by the factor analysis technique. In the first approach, equal weights are attached to indicators so that the composite index will be based on total scores obtained for each of the companies by adding their indicator-wise (see statements 4 and 5 for indicator-wise ranks). The second or the more sophisticated method makes use of the technique of factor analysis. Essentially the technique involves resolving the original set of nineteen selected indicators into a much smaller set of factors (generally one or two) which explain a substantial part of the total variance (say 60 to 80 per cent) of all the indicators. In this study the first approach ie the simplistic method of ranking has been followed.

A point which requires special mention in this context is about the application of the simplistic technique to each of the sub-sets of indicators (such as A,B,C and D) rather than to the whole set of nineteen indicators. The rationale of doing so is twofold. First, the ranks of automobile companies under study based on operational efficiency with regard to profitability and their grading with regard to social performance tend to be inversely related. Thus companies scoring higher ranks according to the former are found in the lower range in terms of the latter. Under such circumstances, it is felt that the pooling of all indicators may conceal the substantial degree of divergence that seems to exist among the four groups – A,B,C and D. Applying the simplistic method of analysis to these groups (considering each group as one composite indicator) to get a composite index also does not seem feasible.

A second and perhaps more important consideration is the problem of interpretation of the factors in terms of operational characteristics of automobile companies. The splitting

into sub-groups also enables one to have a sufficient number of observations in relation to the number of variables (or indicators). From a technical angle therefore it seems more appropriate to consider these four groups of efficiency indicators separately rather than viewing them in terms of a composite index. However, if one does need ranking based on overall efficiency a possible course will be to combine these group-rankings by giving equal weightage. So long as conventional measures of operational efficiency and those based on social performance do not move in harmony, such a crude method may have to be used. This has also been attempted and the results are presented later in Table 3.

To summarize the foregoing, there is no such thing as a single operational efficiency measure of automobile companies. It has many facets which are complementary as well as substitutive. The emphasis laid on each indicator will, however, keep on changing with reference to time as explained earlier. Some, indeed, are apparently in conflict with each other. At least in the short run profitability indicators and indicators of companies' social obligations seem to be negatively correlated. And yet, from a broader angle, it is necessary that all these indicators are included in the matrix that measures the efficiency of automobile companies. At best, they can be considered in convenient, homogenous and meaningful sub-groups or groups. Given the various aspects that different sub-groups represent, to reduce the indicators into one dimension will be devoid of content and may, at times, be misleading too. Hence, a discussion on the four aspects (A, B, C and D) is preferred to the interpretation in terms of a composite index although for the sake of this exercise, a composite index has been constructed by totaling the rankings.

## RESULTS

The results obtained from the simplistic approach are summarized for average and marginal ratios in Table 3 and 2, respectively. For a proper appreciation of the automobile companies' performance, it is necessary to pay equal attention not only to the levels attained but also to the degree of attainment of growth as referred to earlier. This integrated picture of performance based on average and marginal ratios is brought out in the graphs drawn separately for groups A, B, C and D as well as for the composite set.

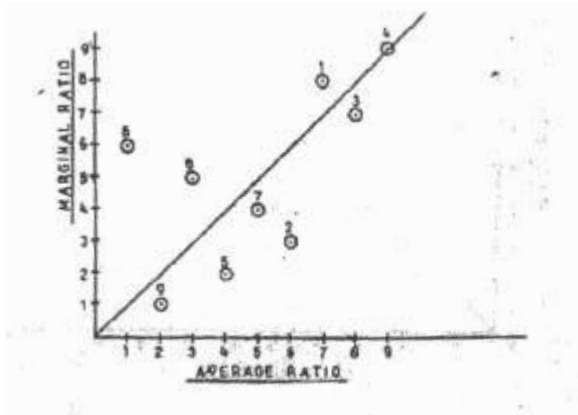
The graphs indicate that there is a close association between the ranks given to the companies based on average ratios and those obtained on the marginal basis of measurement. This is clearly shown by the cluster of points around the line of equality of ranks assigned to each of the companies using both the methods of measurement. The

farther a point/company is from the origin, the farther it goes down on the scale of efficiency. Similarly, if a point departs significantly from the line, it points out the degree of discordance between the ranks obtained by this method. The points above the line indicate comparatively good performance in terms of average ratios whereas those below the line have relatively done well in marginal terms. It will be useful to bear the foregoing remarks in mind while reading the graphs presented.

**Ranking of Automobile Companies with  
Respect to Operational Efficiency and Profitability  
COMPOSITE INDEX**

**X Axis – Ranks According to the Average Ratio**

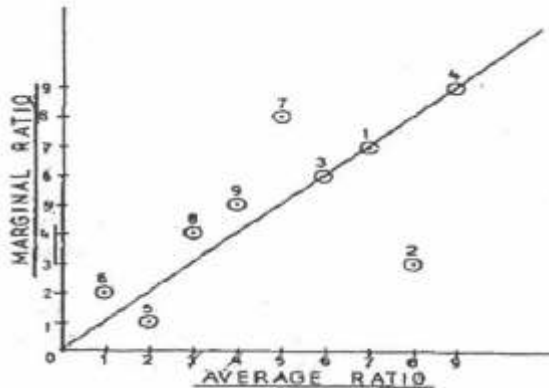
**Y Axis – Ranks According to the Marginal Ratio**



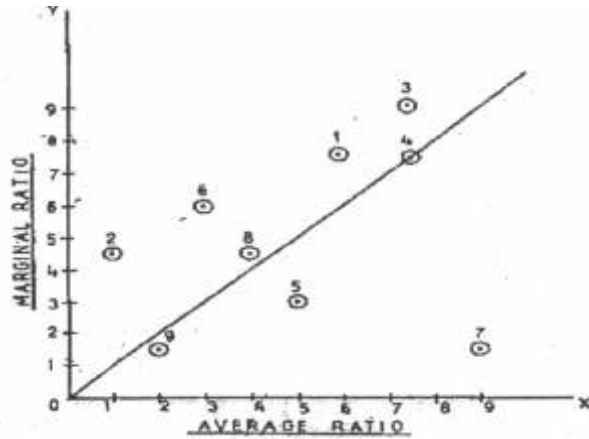
**Ranking of Automobile Companies with  
Respect to Profitability (Group – A)**

**X Axis – Ranks According to the Average Ratio**

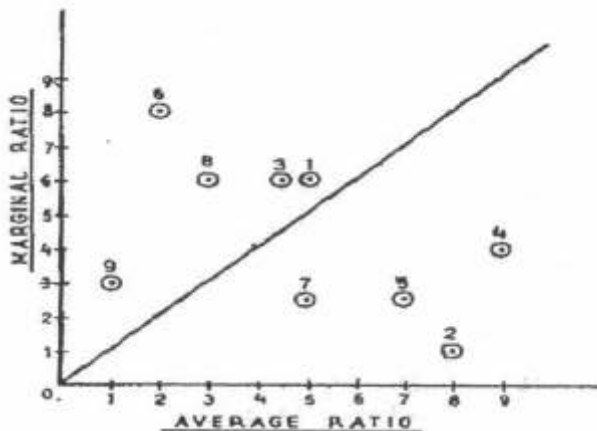
**Y Axis – Ranks According to the Marginal Ratio**



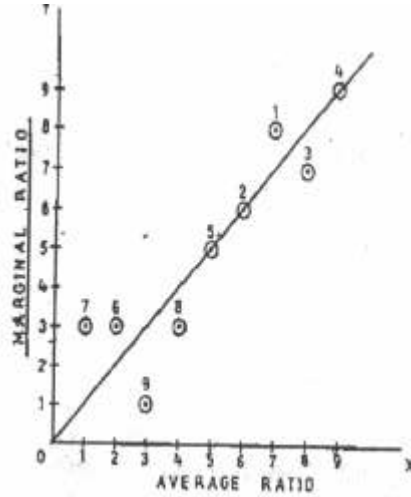
**Ranking of Automobile Companies with  
Respect to Working Capital (Group – B)**  
X Axis – Ranks According to the Average Ratio  
Y Axis – Ranks According to the Marginal Ratio



**Ranking of Automobile Companies with  
Respect to Fixed Assets (Group – C)**  
X Axis – Ranks According to the Average Ratio  
Y Axis – Ranks According to the Marginal Ratio



**Ranking of Automobile Companies with  
Respect to Social Performance (Group – D)  
X Axis – Ranks According to the Average Ratio  
Y Axis – Ranks According to the Marginal Ratio**



**Table – 1  
Ranking of Automobile Companies with  
Respect to Operational Efficiency and Profitability  
Average Ratio**

Co. No.	Profitability (A)		Working Capital (B)		Fixed Assets (C)		Social Performance (D)	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1.	28	7	39	6	26	5	14	7
2.	38	8	25	1	31	8	12	6
3.	26	6	43	7.5	26	5	16	8
4.	45	9	43	7.5	36	9	18	9
5.	13	2	34	5	30	7	10	5
6.	5	1	28	3	16	2	4	2
7.	25	5	45	9	26	5	2	1
8.	22	3	31	4	20	3	8	4
9.	23	4	26	2	14	1	6	3

**Table – 2**  
**Ranking of Automobile Companies with**  
**Respect to Operational Efficiency and Profitability**  
**Marginal Ratio**

Co. No.	Profitability (A)		Working Capital (B)		Fixed Assets (C)		Social Performance (D)	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1.	30	7	39	7.5	26	6	16	8
2.	20	3	33	4.5	20	1	12	6
3.	28	6	48	9	26	6	14	7
4.	44	9	39	7.5	25	4	18	9
5.	7	1	32	3	21	2.5	9	5
6.	11	2	36	6	27	8	6	3
7.	41	8	28	1.5	21	2.5	6	3
8.	24	4	33	4.5	26	6	6	3
9.	26	5	28	1.5	33	9	3	1

To see the effect of aggregation over the groups in the process of arriving at the composite index, it may be convenient to classify the

**Table – 3**  
**Composite Index of Operational Efficiency and Profitability of Automobile**  
**Companies**

Co. No.	Average Ratio Rank						Marginal Ratio Rank					
	A	B	C	D	Total Ranks	Ranking as per Total Ranks	A	B	C	D	Total Ranks	Ranking as per Total Ranks
1.	7	6	8	7	25	7	7	7.5	6	8	28.5	8
2.	8	1	8	6	23	6	3	4.5	1	6	14.5	3
3.	6	7.5	5	8	26.5	8	6	9	6	7	28	7
4.	9	7.5	9	9	34.5	9	9	7.5	4	9	29.5	9
5.	2	5	7	5	19	4	1	3	2.5	5	11.5	2
6.	1	3	2	2	8	1	2	6	8	3	19	6
7.	5	9	5	1	20	5	8	1.5	2.5	3	15	4
8.	3	4	3	4	14	3	4	4.5	6	3	17.5	6
9.	4	2	1	3	10	2	5	1.5	3	1	10.5	1

**Table – 4**  
**Ranking of Automobile Companies with Respect to Operational Efficiency and Profitability Average Ratio**

Co. No.	Profitability (A)					Working Capital (B)						Fixed Assets (C)				Social Performance (D)			
	OP	PATI	RCE	PMR	RESF	ITR	IWCR	DTR	CR	QR	WCTR	OC	NFA	FANWR	FALFR	SFAR	RDTGB	NVA	AVA
1.	6	8	5	3	6	8	8	7	1	4	3	8	2	7	3	8	6	7	7
2.	8	7	8	8	7	6	7	1	3	1	4	3	8	8	2	4	9	6	6
3.	7	6	3	5	5	7	3	6	7	7	7	6	3	5	6	7	5	8	8
4.	9	9	9	9	9	9	1	5	5	9	5	9	1	9	9	9	8	9	9
5.	3	4	2	2	2	3	5	2	9	8	6	1	5	6	7	5	7	5	5
6.	1	1	1	1	1	4	2	4	6	3	8	2	7	2	4	1	2	2	2
7.	5	2	7	7	4	2	4	9	8	6	9	7	4	4	8	6	4	1	1
8.	4	5	4	6	3	5	9	3	4	5	1	4	6	3	5	3	3	4	4
9.	2	3	6	4	8	1	6	8	2	2	2	5	9	1	1	2	1	3	3

OP: Operating Profit

RCE: Return on Capital Employed

RESF: Return on Equity Shareholders' Funds

IWCR: Inventory to Working Capital Ratio

QR: Quick Ratio

OC: Operating Cycle

FANWR: Fixed Assets to Net Worth Ratio

SFAR: Sales to Fixed Assets (Net) Ratio

NVA: Net Value Added

PATI: Profit after Tax and Interest

PMR: Profit Margin Ratio

ITR: Inventory Turnover Ratio

DTR: Debtors Turnover Ratio CR: Current Ratio

WCTR: Working Capital Turnover Ratio

NFA: Net Fixed Assets

FALFR: Fixed Assets (Net) to Long-Term Funds Ratio

RDTGB: Ratio of Depreciation to Gross Block

AVA: Application of Value Added

Note: Rankings based on the various ratios have been computed in the respective chapters.

**Table – 5**  
**Ranking of Automobile Companies with Respect to Operational Efficiency and Profitability Marginal Ratio**

Co. No.	Profitability (A)					Working Capital (B)						Fixed Assets (C)				Social Performance (D)			
	OP	PATI	RCE	PMR	RESF	ITR	IWCR	DTR	CR	QR	WCTR	OC	NFA	FANWR	FALFR	SFAR	RDTGB	NVA	AVA
1.	5	7	5	3	3	7	2	6	7	7	7	3	2	5	5	6	8	8	8
2.	7	6	2	1	4	6	1	1	9	9	1	6	9	3	6	1	1	6	6
3.	6	5	4	7	6	4	6	9	8	3	9	9	5	9	4	3	5	7	7
4.	8	9	9	9	9	8	9	5	3	5	8	1	1	4	2	9	9	9	9
5.	2	2	1	2	1	1	5	2	2	8	6	8	3	1	3	7	7	5	4
6.	1	1	3	4	2	5	7	7	5	4	3	5	7	6	7	4	3	3	3
7.	9	8	8	8	8	2	4	8	1	6	5	2	4	2	1	8	6	1	5
8.	4	4	6	5	5	3	8	3	6	2	4	7	6	8	8	2	2	4	2
9.	3	3	7	6	7	9	3	4	5	1	2	4	8	7	9	5	4	2	1



- OP: Operating Profit
- RCE: Return on Capital Employed
- RESF: Return on Equity Shareholders' Funds
- IWCR: Inventory to Working Capital Ratio
- QR: Quick Ratio
- OC: Operating Cycle
- FANWR: Fixed Assets to Net Worth Ratio
- SFAR: Sales to Fixed Assets (Net) Ratio
- NVA: Net Value Added
- PATI: Profit after Tax and Interest
- PMR: Profit Margin Ratio
- ITR: Inventory Turnover Ratio
- DTR: Debtors Turnover Ratio CR: Current Ratio
- WCTR: Working Capital Turnover Ratio
- NFA: Net Fixed Assets
- FALFR: Fixed Assets (Net) to Long-Term Funds Ratio
- RDTGB: Ratio of Depreciation to Gross Block
- AVA: Application of Value Added

Note: Rankings based on the various ratios have been computed in the respective chapters.

companies into a smaller number of groups (say three), namely, above average (category I), average (category II) and below average (category III). This is brought out in the following table (6) wherein it may be noted that the abbreviations shows against the different categories refer to the abbreviations assigned to the companies. The table also shows the code numbers assigned to the companies (see Annexure I)

**Table – 6**  
**Efficiency Index of Automobile Companies**

Category	A	B	C	D	Composite Index
	FMC	MUL	TMC	GMC	FMC
I. (Above Average)	CC	TMC	FMC	FMC	TMC
	HMC	FMC	HMC	TMC	HMC
	TMC	HMC	PAL	SMPIL	CC
II. (Average)	GMC	CC	GMC	CC	GMC
	PAL	HM	HM	MUL	MUL
	HM	PAL	CC	HM	HM
III. (Below Average)	MUL	SMPIL	HML	PAL	PAL
	SMPIL	GMC	SMPIL	SMPIL	SMPIL

If one judges the overall efficiency of the automobile companies by means of the composite index taken in relation to their rankings under group A, ie profitability, one finds that FMC (Code No. 6), CC (Code No. 5) and HMC (Code No. 8) are definitely in the above average category. It is important to note that FMC (Code No. 6) stands in category I, ie the above average category, in all the groups. FMC's ranking according to the profitability group (group A), the fixed asset group (group C) and the social performance group (group D) is higher than its ranking as per the working capital group (group B). TMC (code No. 9) is in category I in all the sub-groups except group A ie the profitability group. HMC (Code No. 8) is in category I as per group A and group C. Hence, in the composite index of efficiency FMC (code No. 6), TMC (Code No. 9) and HMC (Code No. 8) lie in the above average category.

CC (Code No. 5), GMC (Code No. 7) and MUL (Code No.2) lie in category II showing average performance. According to group A (the profitability group), CC (Code No.5) is in category I but according to group B, C and D, it lies in category II. GMC falls in category I according to the social performance group (Group D) but in category II according to the profitability and fixed assets groups. MUL (Code No. 2) is in category I as per the working capital group (group B) and in category II as per the social performance group (group D).

The companies HM (Code No.1), PAL (Code No. 3) and SMPIL (Code No. 4) lie in category III i.e. the below average category. HM (Code No. 1) falls in category II as per the working capital group (Group B) and the fixed assets group (group C) but stands in category III as per the profitability group (group A). Hence as per the composite position it lies within the below average category. PAL (Code No. 3) falls in category II as per group A and group C and rests in category III as per category III. SMPIL (Code No. 4) falls in category II as per group D but rests in category III as per groups A, B and C. Hence as per the composite position it stands in category III i.e. the below average category.

## CONCLUSION

The main inferences from the composite index are as follows:

- (i) An assessment of operational efficiency at a more desegregated level and in terms of homogeneous groups seems more realistic and meaningful than evoking an efficiency measure at the overall level.
- (ii) The approach adopted has shown its usefulness in measuring the relative success achieved by the automobile companies from 2004-05 to 2013-14 with regard to the diverse aspects in which the term operational efficiency is defined or viewed in the exercise.
- (iii) These companies should periodically assess their own performance vis-a-vis the other main competing companies using this approach. No definite periodicity can be prescribed since the timing of the period for such an appraisal will, to a large extent, be dictated by the phenomena measured and the time required for the policies initiated to have their full impact felt at the operational level.
- (iv) The study attempted here is experimental in nature and therefore the results are

provisional. However, considerable scope exists for enlarging its content through the identification of additional indicators that are crucial to the operations of automobile companies and the generation of reliable data for their measurement. The degree of success in so doing evidently rests on the initiative and drive of individual companies.

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### Annexure I

**Table Showing Codes Allocated to the Companies**

<b>Name of the Company</b>	<b>Code</b>	<b>Code No.</b>
Hindustan Motors Limited	HM	1
Maruti Udyog Limited	MUL	2
Premier Automobiles Limited	PAL	3
Standard Motor Products of India Ltd.	SMPIL	4
Chrysler Corporation	CC	5
Ford Motor Company	FMC	6
General Motor Corporation	GMC	7
Honda Motor Corporation	HMC	8
Toyota Motor Corporation	TMC	9



## BRAND EXPERIENCE AND BRAND LOYALTY: A LITERATURE REVIEW

Ruchika Ramakrishnan<sup>1</sup> and Anupama Vohra<sup>2</sup>

*In today's competitive era, where consumers have a greater number of choices than ever before, more complex choices, and more channels through which to pursue them, the companies are frantically searching for ways to ensure brand loyalty. In such a scenario, delivering unique brand experiences might be a potential differentiation tool as research indicates ensuring meaningful experiences with the brands will win the allegiance of the time-pressed consumer. Additionally, research has confirmed that a firm has no choice as to whether or not to be connected to experiences created by their brands. Though it has been acknowledged, over the years, by marketing academics and practitioners that consumers look for brands that provide them with unique and memorable experiences yet, the term "brand experience" has started getting attention recently in the marketing literature. Thus, this paper presents a detailed discussion about this contemporary concept of brand experience and its relationship with brand loyalty.*

**Key words:** Brand Experience, Brand Loyalty, Brand Experience Scale, Customer Experience, Service Experience.

### INTRODUCTION

*"Brands today are defined by the experience they create for customers"* (Duffy, 2003).

Marketing has traditionally focussed on physical aspects of product and service brands, such as functionality, price, availability or quality neglecting the experiences provided by these brands. However, fortunately or unfortunately, any interaction with a brand is considered as an experience by consumers. Research has confirmed that modern consumers no longer simply buy products and services; instead they buy the wonderful and emotional experiences around what is being sold (Morrison and Crane, 2007). As observed by Schmitt (2011), "Marketing practitioners have come to realize that understanding how consumers experience brands and, in turn, how to provide appealing brand experiences for them, is critical for differentiating their offerings and ensuring

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loyalty in a competitive marketplace”.

Thus, in today's competitive era, where companies are frantically searching for ways to ensure brand loyalty, delivering unique brand experiences might be a potential differentiation tool. In fact, Pullman and Gross (2004) reported, “Evidence suggests that properly executed brand experiences will encourage loyalty by creating emotional connections through an engaging, compelling and consistent context”. Pine and Gilmore (1998) were among the only few who highlighted the importance of “experience” and attributed a separate economic identity to it. They observed, “Economists have typically lumped experiences in with services, but experiences are a distinct economic offering, as different from services as services are from goods”. They argued that as goods and services become commoditized, the “customer experiences” that companies create will matter the most and businesses will be forced to rethink the nature of their products and shift to selling “experiences” rather than products or services.

Hulten (2011) proposed that all communication, consumption experiences, and customer contacts inevitably create an experience in the customer's mind. In fact, many marketing scholars (Addis and Holbrook, 2001; Iglesias, Singh and Batista-Foguet, 2011; Payne, Storbacka, Frow and Knox, 2009) have placed experiences at the heart of the brand building process and agree that experience has become a key element in understanding consumer behaviour, and, above all, a foundation for the economy (Pine and Gilmore, 1998) and marketing (Schmitt, 1999) of the future.

## **EVOLUTION OF BRAND EXPERIENCE: A CRITICAL REVIEW**

Although contemporary academic work emphasises Holbrook and Hirschman's (1982) work as the starting point in considering experiential marketing, Frow and Payne (2007) reported that it has origins in much earlier academic work. In fact, Holbrook (2006) clearly points out the fact that much before Holbrook and Hirschman's (1982) research, various scholars had already emphasised how the services performed provide consumption experiences and the importance of these consumption experiences.

Nevertheless, the majority of the marketing scholars agree that the notion of experience entered the field of consumption and marketing with Holbrook and Hirschman's pioneering article of 1982. They strongly proposed, “By focusing single mindedly on the consumer as information processor, recent consumer research has tended to neglect the equally important experiential aspects of consumption, thereby limiting our

understanding of consumer behaviour". They developed a useful model contrasting the differences between the information-processing (rational) and the experiential view (irrational). They argued that one cannot reduce the explanation of human behaviour to any narrowly circumscribed and simplistic model as the behaviour of people in general and of consumers in particular is the fascinating and endlessly complex result of a multifaceted interaction between organism and environment. They were of the view that in the experiential paradigm, consumer behaviour pursues the more subjective, emotional, and symbolic aspects of consumption. Thus, according to them, for researchers of consumer behaviour, "an experience is above all a personal occurrence, often with important emotional significance, founded on the interaction with stimuli which are the products or services consumed". In fact, the practically oriented management literature in the late 1990s and 2000s largely followed Holbrook and Hirschman's (1982) view.

In one of the earliest works, Alba and Hutchinson (1987) made an attempt to comprehensively review pertinent empirical results available in the psychological literature to provide a useful foundation for research on consumer knowledge. As a result of this review, they stated that product-related experiences include advertising exposures, interactions with salespersons, choice and decision making, purchasing and product usage in various situations. Further, their study revealed that consumers brand experience refers to their knowledge of and familiarity with a brand or brand category.

Carbone and Haeckel (1994), in their conceptual article, published in *Marketing Management*, with a central theme on how to engineer customer experiences defined experience as, "An experience is the take-away impression formed by people's encounters with products, services and businesses – a perception produced when humans consolidate sensory information. In other words, it is the aggregate and cumulative customer perception created during the process of learning about, acquiring, using, maintaining, and (sometimes) disposing of a product or service". They coined a term "experience engineering" and suggested a systematic approach to creating, implementing and measuring the impact of experience clues. They propose that if systematically crafted into a positive impression, the clues promote customer preference, which a company can leverage to differentiate otherwise commodity-like products and services.

Pine and Gilmore (1998), in their widely recognised conceptual article on 'experience economy', published in *Harvard Business Review* (HBR), proposed in the twenty-first century, many developed societies were entering the experience economy following the service economy, where the highest-value economic offerings are experiences. In their

words, “An experience is not an amorphous construct; it is as real an offering as any service, good, or commodity”. According to them, “an experience occurs when a company intentionally uses services as the stage, and goods as props, to engage individual customers in a way that creates a memorable event. Further, companies stage an experience whenever they engage customers, in a personal, memorable way”. They suggested five principles to design memorable experiences where they included the suggestions already given by Carbone and Haeckel (1994). Unfortunately, they provide no numbers on the size of the experience economy or empirical substantiation for the claim that economies are now entering a new stage of economic offerings.

Further, Caru and Cova (2003), considered experience as a key element in understanding consumer behaviour, in their conceptual article, where they suggested that (a) experiences must be given a broader significance in experiential marketing rather than just restricting it to consumption experience and (b) experiences should be studied beyond an ideological view that tends to consider every experience as extraordinary. They defined experience as, “a subjective episode in the construction/ transformation of the individual, with, however, an emphasis on the emotions and senses lived during the immersion at the expense of the cognitive dimension”. Additionally, Vézina as cited in Caru and Cova (2003) observed, in the experiential perspective, the consumption experience “is no longer limited to some pre-purchase activity (the stimulation of a need, the search for information, assessment, etc.), nor to some post-purchase activity, e.g. the assessment of satisfaction, but includes a series of other activities which influence consumers' decisions and future actions”. However, Hetzel (2002) as cited in Caru and Cova (2003) was among the very few who recognised the importance of brand in the experience domain. He did not provide any formal definition of brand experience but introduced brand as one of the pillars of consumers' experience. He identified five levers on action to provide consumers' experience. They were- 'Use what the brand refers to'; 'Surprise the consumer' (and above all 'respond to the need for something unexpected'); 'Propose the extraordinary'; 'Stimulate the five senses'; and 'Create a link with the consumer'.

Meyer and Schwager (2007), in their article on 'understanding customer experiences', published in HBR, defined customer experience as, “the internal and subjective response customers have to any direct or indirect contact with a company. Direct contact generally occurs in the course of purchase, use, and service and is usually initiated by the customer. Indirect contact most often involves unplanned encounters with representations of a company's products, services, or brands and takes the form of word-of-mouth



recommendations or criticisms, advertising, news reports, reviews, and so forth". Further, they distinguished between Customer Experience Management (CEM) and Customer Relationship Management (CRM) and strongly advocated the importance of implementing CEM as it captures and distributes a customer's subjective thoughts about a company, thus, providing information regarding his/her needs and priorities which could supplement CRM as CRM only captures and distributes what a company knows about a customer.

Similarly, based on a review of the "state-of-the-art literature on experience marketing", Gentile, Spiller and Noci (2007) provided a more detailed and a comprehensive definition of experience in the customer context as, "The customer experience originates from a set of interactions between a customer and a product, a company, or part of its organization, which provoke a reaction. This experience is strictly personal and implies the customer's involvement at different levels (rational, emotional, sensorial, physical, and spiritual). Its evaluation depends on the comparison between a customer's *expectations* and the *stimuli* coming from the interaction with the company and its offering in correspondence of the different *moments of contact or touch-points*". According to them, the central idea is to expand the transaction-based notion of customer relationship to the "continuous" concept of customer experience. Additionally, they empirically investigated the specific role of different experiential features in the success achieved by some well-known brands- Swatch, Pringles, Harley-Davidson, McDonald's, and IKEA among others.

In spite of a widespread recognition enjoyed by all the articles discussed above, we observed that these conceptual articles were mainly prescriptive in nature with an inclination towards practitioners and lacked any empirical support. In this context, Verhoef, Lemon, Parasuraman, Roggeveen, Tsiros and Leonard (2009) rightly observed that publications on customer experience are mainly found in practitioner-oriented journals or management books. They further stated, "To the best of our knowledge only a limited number of articles explore customer experience in-depth from a theoretical perspective". They indicated that this scarcity of systematic scholarly research on the customer experience construct and customer experience management calls for a theory-based conceptual framework that can serve as a stimulus and foundation for such research.

Finally, Brakus, Schmitt and Zarantonello (2009) filled up this long identified gap and provided a comprehensive definition of brand experience concept. They conceptualised brand experience as, "subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioural responses evoked by brand-related stimuli (such as brand-

identifying colours, shapes, typefaces, background design elements, slogans, mascots, and brand characters) that are part of a brand's design and identity (e.g., name, logo, signage), packaging, communications (e.g., advertisements, brochures, Web sites), and environments in which the brand is marketed or sold (e.g., stores, events)”.

Further, Same and Larimo (2012), in their conceptual article on experience marketing, have defined an experience as, “An economic offering and an interaction between the company/brand/service, and customer, who perceive and meaningfully experience it”. They observed that experience is a complex and layered construct and gets shaped by the characteristics of the customer and those of the product, company or brand.

Table 1 enlists the major definitions of experience in various contexts which have emerged from our extant review of literature.

**Table 1: Definitions of Experience**

Author	Context	Definition
Alba and Hutchinson (1987)	Brand Experience	Refers to their knowledge of and familiarity with a brand or brand category.
Hui and Bateson (1991)	Service experience	The consumer’s emotional feelings during the service encounter.
Carbone and Haeckel (1994)	Experience	The take away impression formed by people’s encounters with products, services and businesses – a perception produced when humans consolidate sensory information.  It is the aggregate and cumulative customer perception created during the process of learning about, acquiring, using, maintaining, and (sometimes) disposing of a product or service.
Pine and Gilmore (1998)	Experience	An experience occurs when a company intentionally uses services as the stage, and goods as props, to engage individual customers in a way that creates a memorable event.  Experiences are inherently personal, existing only in the mind of an individual who has been engaged on an emotional, physical, intellectual or spiritual level.
Caru and Cova (2003)	Experience	Experience is defined as a subjective episode in the construction/transformation of the individual, with, however, an emphasis on the emotions and senses lived during the immersion at the expense of the cognitive dimension.

Author	Context	Definition
Ha and Perks (2005)	Brand Experience	Displaying a relatively high degree of familiarity with a certain subject area.
Meyer and Schwager (2007)	Customer Experience	<p>Customer experience is the internal and subjective response customers have to any direct or indirect contact with a company.</p> <p>Direct contact generally occurs in the course of purchase, use, and service and is usually initiated by the customer.</p> <p>Indirect contact most often involves unplanned encounters with representations of a company’s products, services, or brands and takes the form of word-of-mouth recommendations or criticisms, advertising, news reports, reviews, and so forth.</p>
Gentile, Spiller and Noci (2007)	Customer Experience	The customer experience originates from a set of interactions between a customer and a product, a company, or part of its organization, which provoke a reaction. This experience is strictly personal and implies the customer’s involvement at different levels (rational, emotional, sensorial, physical, and spiritual)”.
Alloza (2008)	Brand Experience	The perception of the consumer, at every moment of contact they have with the brand, whether it is in the brand images projected in advertising, during the first personal contact, or at the level of quality concerning the personal treatment they receive.
Brakus, Schmitt and Zarantonello (2009)	Brand Experience	Subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioural responses evoked by brand-related stimuli that are part of a brand’s design and identity, packaging, communications, and environments.
Same and Larimo (2012)	Experience	An economic offering and an interaction between the company/brand/service, and customer, who perceive and meaningfully experience it.

Source: Adapted from Skard, Siv, Herbjørn Nysveen and Per Egil Pedersen (2011), “Brand and Customer Experience in Service Organizations: Literature Review and Brand Experience Construct Validation”, SNF Working Paper No. 09/11, INSTITUTE FOR RESEARCH IN ECONOMICS AND BUSINESS ADMINISTRATION BERGEN, APRIL 2011, ISSN 1503-2140.

Thus, this critical review of literature reveals that definition of brand experience as

provided by Brakus *et al.* (2009) can be presently considered to be the most holistic definition, including most of the aspects of experience identified in the marketing literature till date. This concept of brand experience has also been suggested as the most comprehensive notion of experience, spanning across different contexts, by Zarantonello and Schmitt (2010). Further, Nysveen, Pedersen and Skard (2013) observed, “However, given that both customers and non-customers can have brand experiences, we consider brand experience (as conceptualised by Brakus *et al.*, 2009) to be the broadest experience construct”.

### **BRAND EXPERIENCE SCALE: DEVELOPMENT AND USE**

Brakus *et al.* (2009) along with a comprehensive definition of brand experience concept provided an empirically validated brand experience scale. Based on a multi-stage study and repeated reliability and validity checks, they developed a multidimensional brand experience scale consisting of 12 items pertaining to four dimensions of brand experience—sensory, affective, intellectual and behavioural. The **sensory** dimension refers to the visual, auditory, tactile, gustative, and olfactory stimulations provided by a brand; the **affective** dimension, includes feelings generated by the brand and its emotional bond with the consumer; the **intellectual** dimension, refers to the ability of the brand to engage consumers' convergent and divergent thinking; and the **behavioural** dimension, includes bodily experiences, lifestyles, and interactions with the brand. This was the beginning of meaningful empirical work related to brand experience. However, their sample was limited to university students at most of the stages of the study, thus, putting a question mark on the generalizability of the brand experience scale proposed by them.

Zarantonello and Schmitt (2010) tried to overcome this shortcoming of using only the student sample by conducting a field study with actual consumers. They used Brakus *et al.* (2009) brand experience scale to identify clusters of the consumers based on their average ratings on each of the four dimensions of brand experience scale. Although it was a good attempt in terms of type of sample and statistical techniques used to relate brand experience with brand attitudes and purchase intentions, only a few product brands were included for this analysis.

Further, Iglesias *et al.* (2011) also empirically validated the brand experience scale proposed by Brakus *et al.* (2009) while studying how brand experience determines brand loyalty. However, they considered the effect of only one mediating variable - affective commitment - on the relationship between brand experience and brand loyalty.

Their study was limited to a student sample and focussed only on product categories of cars, laptops and sneakers.

Nysveen *et al.* (2013) commenting on the available views on experience in the marketing literature, have rightly stated that underpinning much of the literature on brand experience is the recognition of hedonistic aspects of goods and services; hence some value creation beyond functional aspects. Additionally, they empirically filled up the long standing gap in the brand experience literature by applying the brand experience scale as proposed by Brakus *et al.* (2009) on a service category of telecommunication service provider. They tried to validate the brand experience dimensions as proposed by Brakus *et al.* (2009) and introduced a new dimension called relational experience.

## **BRAND LOYALTY: MEANING AND IMPORTANCE**

The development and maintenance of brand loyalty is placed at the heart of companies' marketing plans, especially in the face of highly competitive markets with increasing unpredictability and reducing product differentiation (Fournier and Yao, 1997). Brand loyalty is one of the most-cited concepts in marketing literature since the idea was first identified (Knox and Walker, 2001; Lau and Lee, 1999) in the seminal work of Copeland (1923) around 90 years ago as brand insistence. Brand insistence combines the behavioural index of exclusive purchase with an out-of-stock decision that another brand would only be purchased in the case of an emergency. This fact is substantiated by Howard and Sheth's observation (1969) that the importance of brand loyalty has been recognized in the marketing literature for at least three decades pointing towards the timeless managerial relevance of this concept.

Jacoby and Chestnut (1978) reviewed over 200 studies and provided one of the earliest conceptual definitions of brand loyalty. According to them, brand loyalty is: "The (a) biased, (b) behavioural response, (c) expressed over time, (d) by some decision-making unit, (e) with respect to one or more alternative brands out of a set of such brands, and (f) is a function of psychological (decision-making, evaluative) processes".

According to Oliver (1997) brand loyalty refers to the tendency to be loyal to a focal brand, which is demonstrated by the intention to buy the brand as a primary choice. This definition was modified and made more explicit by Oliver (1999). In this paper, brand loyalty was defined as, "A deeply held commitment to re-buy or re-patronise a preferred

product or service consistently in the future, thereby causing repetitive same- brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour.”

Davis-Sramek, Mentzer and Stank (2008) summarised that brand loyalty has been defined in terms of repeat purchasing, a positive attitude, long-term commitment, intention to continue the relationship, expressing positive word-of-mouth, likelihood of not switching, or any combination of these.

The broad range of benefits derived from brand loyalty is well-accepted by both academics and practitioners. A review of literature (Aaker, 1991; Delgado- Ballester and Munuera –Aleman, 2001; Pritchard, Havitz and Howard, 1999; Reichheld and Schefter, 2000) reveals that firms selling brands with a high rate of loyal consumers have a competitive advantage over other firms as brand loyalty facilitates customer retention efforts by providing a substantial entry barrier to the competitors and an increase in the firm's ability to respond to competitive threats as well as reduced marketing costs, more new customers, and greater trade leverage.

Further, Dick and Basu (1994) suggested the other loyalty-related marketing advantages, such as favourable word of mouth and greater resistance among loyal consumers to competitive strategies i.e., a customer base less sensitive to the marketing efforts of competitors. A lot of eminent scholars including Athanassopoulos, Gounaris and Stathakopoulos (2001); Jacoby and Chestnut (1978); Pessemier (1959); and Reichheld (1996) are of the view that brand-loyal consumers may be willing to pay more for a brand because they perceive some unique value in the brand that no alternative can provide. Further, Assael (1998) observed that brand loyalty leads to greater sales and revenue leading to greater market share when the same brand is repeatedly purchased by loyal consumers, irrespective of situational constraints.

## **RELATIONSHIP BETWEEN BRAND EXPERIENCE AND BRAND LOYALTY**

A positive relationship between brand experience and brand loyalty has been proposed in a number of studies though with a lack of empirical support in a majority of these studies. For instance, Sheth and Venkatesan (1968) proposed that brand loyalty is developed through the experience of repurchasing a brand over time. Similarly, Smith and

Swinyard (1983) proposed that the more frequent the prior experience, the stronger the attitude. Carbone and Haeckel (1994) clearly recognised experience as one of the paths along with the product's performance and the service's performance which can lead to customer preference. They observed, based on their real-life experiences, engineering customer experiences is an important- and largely unexploited- strategy for establishing and maintaining customer preference. In the same direction, Tax, Brown, and Chandrashekar (1998) proposed that positive prior experiences foster commitment to the brand. Also, Oliver (1999) proposed that loyalty begins to grow only when the consumer begins to evaluate his or her consumption experiences with the brand.

Further, Berry, Carbone and Haeckel (2002) reported that to compete successfully in the competitive territory, a growing number of organizations were systematically applying the principles and tools of customer-experience management i.e., combining functional and emotional benefits in their offerings to strengthen loyalty. Similarly, Duffy (2003) proposed that to encourage loyalty a company should be focussed and passionate about creating a great product or service brand experience for their customers. Bennett, Hartel and McColl-Kennedy (2005) asserted that an understanding of the role of previous experience with a purchase decision is critical to an understanding of the development of attitudinal brand loyalty.

Ha and Perks (2005) stated greater brand experience is not only associated with familiarity, but also impacts crucially on understanding, enjoying, enhancing and fostering the brand. They further stated that consumers' satisfaction and loyalty develops as a result of the consumers' positive experience with the brand which will positively affect brand commitment and re-purchase intentions and improves brand reputation. Ponsonby-McCabe and Boyle (2006) stated, "For building brand loyalty, consumers' experiences are all important".

Similarly, Crosby and Johnson (2007) observed that with the trend today toward commoditization and increasing price and quality parity, engaging with customers emotionally—through the brand experience—often provides the best opportunities for differentiation.

In their study, Brakus *et al.* (2009) indicated a positive relationship between brand experience and brand loyalty and empirically validated it on a sample of university students. In fact, Curran, Sajeev and Rosen (2010) are among the very few who have

empirically validated this relationship. In their study, they proved that experience has an extremely important influence on attitude and plays a significant role in purchase likelihood for the loyalty condition. Also, Iglesias *et al.* (2011) based on a sample of MBA students, empirically proved that consumers with greater brand experiences develop higher levels of brand loyalty through affective commitment. They suggested that in a complex environment where the brands face a fierce competition, the possibility of differentiating brands depends largely on their ability to deliver top consumer experiences that succeed in engaging consumers in a long-term relationship.

To conclude, in spite of such a frequent mention of “experience” in literature, Schmitt (2011) rightly observed that still “experience”, as a concept and as an empirical phenomenon, is not yet as established as other consumer and marketing concepts such as choice, attitudes, consumer satisfaction, or brand equity. Thus, there exists a wide conceptual and empirical gap to understand the role played by brand experience in creating differentiation resulting in consumers' preference for a particular brand.

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## DEMOGRAPHIC DIVIDEND AND DEMOGRAPHY- DEVELOPMENT LINK

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*At present, a number of developing countries including India are passing through a phase of demographic transition wherein they can derive a number of potential benefits from their growing population by virtue of the population having tilted in favour of relatively younger and working age-groups. As these younger people can earn as well as save more, it is generally expected that they can contribute more to the generation of national income by enhancing the productive potentiality of the economy through increased saving and hence investment thereby leading to a higher level of economic growth and development. This kind of an optimism should not however be taken to be a matter of foregone conclusion in as much as the deriving of such a 'demographic dividend' crucially hinges on the provision of requisite skills & training as also sufficient employment opportunities to the increasing number of young economic agents entering the potentially working age groups in the concerned economies. Given the large-scale unemployment and poor skill formation prevalent in these economies, there is always a danger and apprehension that the potential of a demographic dividend could either go waste altogether or may only remain incompletely exploited. In the light of all these apprehensions, the present article takes a closer look at the overall link between demographic trends on the one hand and developmental patterns & outcomes on the other so as to identify the crucial factors that must be taken care of by these economies in order to fully reap the 'demographic dividend' with a view to achieving economic growth, prosperity and welfare of the masses.*

### INTRODUCTION

The link between population trends or demography on the one hand and economic development on the other has come to the centre-stage of development debates in recent years in view of the possibility of a 'demographic dividend' that some developing countries including India could potentially derive in the years to come. The main points of debate and areas of discussion in this respect are not only the underlying reasons for which only a selected few countries are capable of deriving such a dividend emerging out of demographic trends but also the requisite conditions under which it would indeed

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materialise in actual practice. In this connection, it must be conceded that 'demographic dividend' is not a matter of foregone conclusion and even those economies which can potentially derive it may fail to do so in case they falter on developing the enabling environment conducive to availing of such a dividend.

In order to have a better understanding of what precisely constitutes demographic dividend, in what kind of economies it could accrue and what are the underlying conditions and assumptions under which it would fructify, it is imperative to have a closer look at the demography-development link. It is against this backdrop, that the present article goes deeper into an analysis of the inter-linkages between population trends *i.e.* demography of an economy on the one hand and the process of its growth & development on the other. The purpose is to derive useful insights into the ways and means through which the vast pool of human resources in the economy could be effectively harnessed for achieving economic growth and development so as to improve the general welfare of the masses.

The next section explores the fundamental issue whether population growth is a boon or in fact a bane for an economy. A detailed investigation of this issue calls for having a closer look at the basic demography-development link which in turn is accomplished in the subsequent section. Once the inter-linkages between the demographic profile of an economy and the process of its economic development are thoroughly analysed in this manner, the stage is set to fully understand the intricacies as also the pros & cons of 'demographic dividend' which form the subject matter of next section. This is followed by a detailed discussion in the subsequent section about the ways and means of ensuring that the demographic dividend is fully reaped by the concerned economies. And finally, the conclusions following from the present study are recorded in the last section.

### **Population Growth: Is it a Boon or a Bane?**

There is no denying the fact that labour is one of the most important factor of production in the economy. In fact, in Marxian literature, all value is supposed to belong to labour alone. In any case, the importance of labour is recognised by any economic theory in as much as even capital resources such as machinery and equipment are essentially 'reproducible' in the sense that in the ultimate analysis they too are man-made. It is actually when human beings act on nature and 'invent' as also 'innovate' that the foundation of all progress in the society is laid down. No technological advancements can take place without human intellect and human effort and hence economic growth

and development are inconceivable without human beings. In view of this, increasing population of human beings appears to be beneficial for any economy from the perspective of economic development as more human beings could mean more human resources, more human brains and more human capital.

Yet we find that higher population growth in an economy is generally viewed with contempt and is considered to be a major barrier rather than facilitator in economic development. For, the population of a country can rise rapidly if and only if birth rates are high and death rates are low or both these developments take place simultaneously reinforcing each other. Both ways, the proportion of too young *i.e.* less than 15 years of age and too old *viz.* more than 64 years goes up in the entire population and conventionally these age-groups are considered to be non-working age groups. Though not earning, the consumption expenditures of households on these age-groups generally tend to be relatively higher as they need comparatively more medical & health care and in the case of too young *i.e.* less than 15 years, expenditures incurred on schooling & education is an added factor. This clearly implies that when population in an economy grows, the 'burden of dependency' rises in the sense that non-working and non-earning age groups having on an average higher consumption expenditure go up as a proportion of the population. As these age groups merely add to consumption expenditures while their contribution to income is practically negligible, the overall impact is a dampening of the 'Saving rate' in the economy. In the absence of requisite savings, evidently the level of investment is curtailed thereby having a more than proportionate loss of national output in terms of the 'opportunity cost' argument due to the standard multiplier effect. To put it simply, increasing population acts as a brake on the growth tempo of the economy by discouraging saving and investment and adversely affecting the productive potential of the economy under consideration.

In addition to such a 'Saving Effect', a growing population could also be detrimental to growth and development on account of altering the 'Composition of Investment' in a relatively unproductive direction. More specifically, when population in an economy grows unabatedly, a large part of public investment is devoted to the building up of social infrastructure and carrying out welfare programmes aimed at providing for education and health facilities to the growing masses. Though such expenditures are a must from the viewpoint of 'human development', yet it must be realised that they do not contribute to the generation of national income as significantly and as fast as some directly productive activities such as steel, cement, chemicals industry and the like that are considered to be

the 'prime movers' behind growth due to their strong *forward and backward linkages* with the rest of the economy. Human development too would, no doubt, contribute to the growth process of the economy in due course *via* raising productivity and bringing about human resource development, but the point to be noted here is that the same or even higher level of human development itself can be achieved with the same amount of resources in an economy in case the growth of population is somehow reduced.

In the light of the foregoing arguments, it becomes a subject matter of a continuing debate whether population growth is a boon or in fact a bane for an economy. In the case of poor and developing countries, it is often alleged that increasing population constrains economic development by acting as a major impediment to the growth process of the economy. In sharp contrast, in the case of advanced developed economies it is widely acknowledged that it is growing population that serves as a human resource and even human capital thereby contributing significantly to the process of economic growth and development.

This apparently paradoxical observation evidently raises the fundamental question that why is it so that population acts as an asset in developed economies and a burden or drain in the case of developing economies. In order to address this moot question so as to resolve this paradox, it is imperative to have a closer look at the complex inter-linkages between demography or population trends of a country on the one hand and the process of its economic development on the other. For, it is quite conceivable that certain underlying socio-political, cultural and economic factors peculiar to poor developing economies could be preventing the growing human population from serving as resources unlike the developed economies wherein the socio-economic and politico-cultural environment is quite conducive for the population to serve as human resources and human capital.

Another related issue worth exploring is how to break this 'vicious cycle' in developing economies and convert it into a 'virtuous cycle' as witnessed in the case of countries belonging to the developed world so that even the developing world could reap the potential benefits arising from their growing population to achieve prosperity and welfare.

### **The Demography-Development Link**

At the very outset, it must be conceded that the link between population trends and economic development is one of *interdependence* rather than being unidirectional. That

is to say, as opposed to the popularly held view that the population pattern or demography of a country shapes its development scenario, it is equally valid to contend that the stage of development itself has a significant bearing on the demographic profile of an economy. Thus, rather than looking at it as a one-way causality, it would be more appropriate to assert that demography and development are mutually inter-linked in a complex fashion.

The fact of the matter is that every economy over its era of economic development typically passes through broadly three stages of *demographic transition* as observed in the case of present-day developed countries over their own era of economic development. More specifically, in the first stage when the country is underdeveloped, both the birth rates and death rates tend to be very high as a result of which the rate of growth of population remains rather low as high fertility rates are offset by high mortality rates. When the economy starts developing, however, the fertility rates and birth rates continue to remain high but the mortality or death rates suddenly decline due to which population starts growing at such a rapid pace that it can be reasonably regarded as a kind of 'population explosion'. For instance, after the year of the great divide *i.e.* 1921, the Indian economy has entered into the second stage of demographic transition thereby experiencing a spurt in its population growth. Curiously enough, the rate of growth of population in India during the immediately preceding decade *viz.* 1911-21 was in fact negative on account of the influenza epidemic observed during the concerned period.

In fact, the drastic fall in death rates in a relatively short span of time as witnessed during the second stage of demographic transition is itself attributable to rapid advancements in the fields of medicinal technology as also transportation & communication by virtue of which episodes of large-scale mortalities say on account of *epidemics* and *famines* can be effectively brought down. As the fertility and birth rates are slow to respond, the net outcome is a sudden rise in the growth rate of population. It must be realised that this phenomenon is not peculiar to only the developing countries of today but even the so-called developed countries of contemporary world essentially belonging to the continents of Europe and America have passed through this phase over their passage of economic development. Thus there is no need to be alarmist or put undue blame on the present-day developing countries for excessive growths in their population as similar rates of growth of population were registered even in the developed world when its countries were themselves developing.

According to some scholars, the allegations and objections raised against high population growth of present-day developing economies by developed countries are essentially dictated by dual standards and an apprehension of political dominance coming out of large numbers. For, in international fora, owing to their growing numbers the developing world could collectively be more vocal and may seriously question as also challenge the hegemony of the western world thereby threatening and jeopardising the vested interests of the developed world. In this connection, following a third-world perspective, Ray (2012) comes in the defence of the developing countries by claiming that in a historical perspective the developing countries have not grown more than their “fair share” *vis-à-vis* the developed economies and any apprehension or scepticism raised by latter in this respect is governed by the scare that on the international scene, a large population amounts to greater political and economic power.

On closer examination, however, we find that such arguments in favour or defence of the developing world notwithstanding, the developing economies must nevertheless do an *introspection* as to why it is taking so long for the birth rates to decline in them. For, according to the theory of demographic transition based on the actual demographic experience of the contemporary developed world, the second stage of 'population explosion' is invariably followed by the third stage wherein just like the death rates, even the birth rates tend to fall thereby lowering the overall growth rate of population and the country becoming developed in nature. In the light of this empirical observation, it is obviously intriguing to investigate as to why the countries belonging to present-day developing world largely belonging to Asia, Africa and Latin America are taking so long in switching from the second to third stage of demographic transition. In other words, why is the process of economic development getting delayed in the case of developing countries of today is an issue worth exploring.

It must be realised that the rate of growth of population tends to be 'low' both in the first as well as the third stage of demographic transition even though in the first stage the country remains underdeveloped whereas the third stage connotes the state of being a developed economy. This anomaly can be easily explained by referring to the fact that the developmental state of a country is related more to the underlying reasons behind an apparent demographic trend rather than that trend *per se*. More specifically, the low rate of population growth during the first stage is essentially attributable to high death rates whereas in the third stage of demographic transition, it essentially comes into being on account of low birth rates. Evidently, a developed economy must have a high life



expectancy at birth and this is only possible when death rates are low as happens indeed during the third stage unlike the first stage of demographic transition. Thus it follows that an economy can enter into the stage of being developed if and only if mortality or death rates are low along with a low growth rate of population and this in turn can come about only when birth rates too are low. It is against this backdrop that it becomes all the more desirable to identify and rectify the root cause of delays in birth rates to fall in the case of present-day developing countries despite the death rates having already fallen owing to rapid advancements in science & technology in general and medicinal technology in particular.

In this context, it is worth noting that a fall in fertility rates is at best only a *necessary* but not a *sufficient* condition for ensuring a decline in birth rates in an economy. This is largely because fertility rates refer to the average number of children born to a woman throughout her life. But birth rates at any juncture in an economy are not just related to the average number of children born to a woman but also depend upon how many women on an average are giving birth to children over any point of time. Thus it is quite plausible that through deliberate efforts on the part of planners and policy makers, fertility rates are somehow brought down in an economy yet the birth rates may continue to remain high as the number of women in potentially reproductive age groups may have gone up. This for instance is likely to happen in an economy wherein the age structure of population has got tilted towards the younger age groups.

As a matter of fact, for an economy passing through the second stage of demographic transition, such a situation is bound to come sooner or later. For, the very fact that population is growing at a rapid pace due to high birth rates during the second stage signifies that the proportion of younger age groups in the population is rising which in due course would definitely tilt the age structure of population in favour of the young. Once this happens, there will be a lagged effect of birth rates to respond to falling fertility rates and in the intervening period, population of the concerned economy will continue to rise at a rapid pace so much so that it could be virtually compared to a population explosion. This could be one major reason accounting for the inability of contemporary developing countries to smoothly switch over from second to the third stage of demographic transition.

But by far the most important barrier faced by developing countries in their smooth transition to the stage of development is their failure in lowering the fertility rates themselves not to speak of lowering the birth rates and thereby population growth! And

this failure is in turn attributable to the socio-political and cultural environment which is by and large prevalent in poor developing economies.

First of all, as opposed to the developed world wherein progeny is desired essentially for its *intrinsic value* or worth, a large majority of people in the developing countries look forward to their offspring more as an *instrumental value* or means for providing social security in their old age. This differential in the respective treatment of children across developed and developing world primarily arises out of the existence of certain institutions in the developed countries such as the provision of social security by the State or employer that are practically non-existent in developing countries. Surprisingly enough, the existence of certain other institutions such as the joint family system that are more prevalent in the developing world rather than the developed world tend to reinforce this tendency of treating children as an end in themselves in developed countries and more as a means towards achieving an end *viz.* old age support in the case of developing countries.

To be specific, the fertility decisions of a household in the developed countries are not conditional on the ability of progeny to serve as a social safety or support mechanism in their old age. For, such a social security is generally provided by the government as a *welfare state* as also the employer in the form of pensions and provident funds in all such economies. In the case of poor developing economies, however, as a large part of the workforce is employed in the unorganised and informal sector, such social safety support from the side of employer is largely lacking. Further, even the governments of such economies usually fail to effectively perform the social welfare function on account of a multiplicity of factors ranging from serious resource constraints to inefficiency, red-tape and corruption. Under these circumstances, the poor masses living close to subsistence level in developing countries are left with no option but to seek recourse to their offspring to look after and financially support them in their old age when they will fail to earn on their own.

Once the people in poor and developing economies decide to choose their progeny as a social security mechanism for old age in this manner, they tend to have high fertility rates on account of numerous institutions and social practices the most prominent among them being the joint family system and social orthodoxy. More specifically, the joint family system tends to lower the average costs of upbringing children especially the implicitly borne costs in terms of opportunity cost of time spent in looking after children. For, unlike a nuclear family, a “cushion” so to say is provided by the availability of

grandparents on the one hand and young uncles and aunts on the other to take care of children in a joint family who render this job free of cost out of love, affection and family ties. As these helping hands in looking after children are typically outside the conventionally defined 'working age-groups', their opportunity cost can be reasonably considered to be close to 'nil' for all practical purposes and thus the resulting cost-saving aspect tends to *ceteris-paribus* induce households to have larger families.

The degree of urbanisation is a related factor in as much as other things remaining the same, the cost of upbringing children tends to be higher in urban areas and thus increasing level of urbanisation is likely to lower fertility rates. Moreover, in urban areas, female participation in workforce may be induced due to the higher costs of living in general. To the extent this factor is prominent, the opportunity cost of taking care of children on the part of the mother will go up thereby discouraging households to have higher fertility rates. In view of this, the extent of urbanisation could be reasonably considered as a 'correlate' of declining fertility in its own right. In this context, Dyson (2008) admits that urbanisation has *facilitated* the reductions in mortality and fertility that are integral components of the demographic transition.

In this respect, however, certain social customs and orthodox practices often play a counterproductive role in the case of poor and developing countries thereby giving a further fillip to the rate of growth of population. For instance, social norms discouraging women from working outside the household and treating the upbringing of children as the sacrosanct duty of only the womenfolk are the cases in point that lead to a continuation of the *status quo* thereby keeping population growth at a higher level in the case of less developed and developing countries. In some cases, dictated by this social orthodoxy, yet another malpractice is observed whereby females are paid lower wages *vis-à-vis* their male counterparts for the same kind of job and same productivity at the margin! Such differentials in wages of male and female workers evidently lower the opportunity cost of upbringing children on the part of the mother and discourage female participation in workforce. In this context, it is noteworthy that according to Drèze and Sen (2013), in India as a whole, and especially in its 'northern heartland', women's participation in the workforce has been stagnating at very low levels for decades.

Paradoxically enough, the commitment of governments in developing economies to social welfare activities such as the provision of health and education at times works in the direction of raising fertility rates by lowering the costs of upbringing children

thereby practically adding fuel to fire on the front of population control. The rationale underlying this contention is that when guided by its welfare motives, the governments in concerned economies try to provide free primary education or preventive & curative health care to the children either free of cost or instead at highly subsidised rates, at least a part of explicit costs in upbringing children is paid out of public exchequer rather than the households. This obviously gives an incentive to potential parents to go in for larger families thereby complicating the job of population policy aimed at controlling excessive growth of population in such economies.

In the light of this possibility, it directly follows that instead of short-term welfare programmes and populist policies guided by vote-bank politics, the governments in poor and developing economies shall aim their development policies at providing social security to the masses for their old age through the provision of say 'old age pensions' so as to meet their basic minimum needs when they will fail to earn on their own. This way, people will look forward to State assistance rather than their progeny as a 'social security mechanism' for their old age thereby putting a check on their fertility rates.

Once this is accomplished, the root cause of excessive fertility rates in the case of developing countries will wither away. For, it is a well acknowledged fact that so long as potential parents rely on their offspring for financial support in their old age, they face numerous uncertainties which in turn induce them to have still higher and higher fertility rates. To be specific, for availing financial safety from the side of children, the first thing parents wish to ensure is that the child must survive at least till the parents are themselves alive. Given the high incidence of disease & malnutrition among children and very high 'Infant Mortality Rates' in the case of less developed and developing countries, the parents are particularly apprehensive on this count and in order to play safe in this regard, they end up having higher fertility rates than required otherwise. Even so, the problem is further compounded by the 'Gender bias' prevalent in their orthodox societies whereby females are discouraged to financially support their parents after marriage. Deprived of social support for old-age through government & institutional channels and having been prevented from seeking financial support from their daughters in this manner, the poor people in such conservative societies tend to develop a preference for the 'male' child as the only source of support in their old age which in turn is responsible for giving a further boost to fertility rates in poor developing economies.

In view of the low-income levels and large-scale unemployment prevalent in poor

economies, potential parents typically have yet another apprehension that even if children survive, they may not be able to earn enough to properly look after them in their old age. For, it is worth noting that following the same line of reasoning adopted by their parents, when children would grow up in such economies, they too will have to look after a large number of children as a support mechanism for their own old age apart from financially supporting their own aging parents. Under these circumstances, it is quite conceivable that some children may either shy away from this responsibility of looking after their parents or may simply not be in a position to bear the financial burden imposed in this proposition due to poor income levels or even inability to find any meaningful employment. This possible reluctance of children to take care of aging parents on any count in turn induces potential parents to have higher fertility rates on the ground that in order to meet all these eventualities, having more children is always a better bet than having less of them. For, with more children, there is more likelihood that at least some of them would be ready to financially support their parents in old age and if not at the micro level, at least collectively the children would be able to pool together their funds to collectively bear the costs of looking after their aging parents.

It is thus clear from the foregoing discussion that at the very root of higher fertility rates in poor, less developed and developing economies, lies the absence of social security for old age as perceived by potential parents employed in informal and unorganised sectors which in turn induces them to have a larger number of children on the underlying belief that at least some of them would be in a position to collectively meet their basic minimum expenses in their old age. What this essentially implies is that the only long-term solution before the governments of poor and developing economies to control high fertility rates is to break this vicious cycle by providing social security through old-age pensions and similar such schemes so that poor do not have to seek recourse to the financial help provided by progeny in their old age. Once this is accomplished, the concerned economies will be in a position to achieve 'optimal' growth rates of population by registering a decline in fertility rates and eventually a fall in their birth rates thereby switching over from the second to the third stage of *demographic transition* which in turn connotes the stage of being a developed economy.

### **Demographic Dividend: Is it a Matter of Foregone Conclusion?**

'Demographic Dividend' seems to be the buzzword nowadays in as much as everybody seems to be talking about the tremendous growth potential of some developing

economies including the Indian economy on account of a higher proportion of relatively younger age groups in the population. More specifically, developing economies like India are currently passing through a phase of demographic transition wherein owing to high birth rates in the recent past, the age-distribution of population has got tilted in favour of the young but above 15 years. As people in the age group of 15 years to 64 years are conventionally considered to be the *working age groups* whereas those lying outside this range are treated as *dependents*, it is expected that such a demographic development will not only reduce the 'burden of dependency' in the economy but could quite conceivably raise the generation of national income through the contribution of increasing number of those belonging to the working age group. The net outcome of this is an increase in 'saving rate' and thereby investment in the economy which is likely to raise the rate of economic growth through an increased production potentiality and the standard multiplier effect. This is indeed what constitutes the 'demographic dividend' which India and other such developing economies in their current phase of demographic transition could potentially derive in the near future.

In sharp contrast, as the countries belonging to the continents of Europe and America which are considered to be a part of the present-day developed world have by and large comparatively aged and aging populations, they are evidently not in a position to derive any such dividend from demographic trends in the times to come. This becomes clear from a glance at TABLE-1 wherein the estimates and projections of population lying in the potentially working age-group of 15 to 64 years are presented for a set of four selected countries *viz.* India, China, United Kingdom and United States of America after periodic intervals of 5 years over the entire sample period of 2000-2050.

As is evident from TABLE-1, right since the year 2000, the proportion of working age groups *i.e.* 15-64 years continues to steadily rise in the case of India till the year 2030 so much so that there is a net increase in it by 5.6 percentage points from 62% to 67.6%. Such a demographic trend in turn connotes a corresponding reduction in the 'burden of dependency' thereby signifying that starting from the year 2000, Indian economy has been in a position to derive a *demographic dividend* which is likely to accrue at least till the year 2030 in India.

Likewise, China too was in a position to derive such a dividend arising out of its demographic trends but as is amply clear from TABLE-1, beyond the year 2010 the 'demographic dividend' starts dwindling there. For, after reaching a peak of 73.4% in

2010, the proportion of working age groups in total population of China continuously falls to eventually reach a projected level of just 59.5% by the year 2050. This implies that the process of population getting tilted in favour of younger age groups must have started much before in the case of Chinese economy *vis-à-vis* the Indian economy. As a result, India can continue to derive the demographic dividend for two more decades beyond 2010 when such a dividend starts dwindling in the case of China.

**Table-1 Proportion of Working Age Groups of 15 to 64 years in Total Population**

Year	India	China	United Kingdom	United States of America
2000	62%	68.1%	65.3%	66.2%
2005	63.2%	71.7%	66.2%	67.1%
2010	64.6%	73.4%	66.3%	67.1%
2015	66%	72.9%	64.9%	65.9%
2020	67%	70.6%	63.9%	64.2%
2025	67.5%	69.2%	63.1%	62.2%
2030	67.6%	67.6%	61.9%	61%
2035	67.4%	65%	61%	60.7%
2040	66.9%	62.6%	60.9%	60.9%
2045	66.2%	61.3%	61.1%	61.2%
2050	65.5%	59.5%	60.8%	61.1%

(Source: United States Census Bureau Website [www.census.gov](http://www.census.gov))

As far as the countries of the developed world represented by the United Kingdom and United States of America in TABLE-1 are concerned, it is quite obvious that they practically had already derived any possible demographic dividend in as much as the proportion of working age groups started stagnating in them beyond 2005 itself and exhibits a continuous decline after 2010.

On closer examination, however, we find that even in the case of developing economies like India reaping a 'demographic dividend' is not a matter of foregone conclusion in as much as there are a number of conditionalities attached to a potential benefit fructifying or materialising in actual practice.

For instance, in the case of Indian economy, as the population is gradually titling in favour of younger age groups to such an extent that the average age of population is expected to be 29 years by the year 2020, there is no denying the fact that a *demographic dividend* is likely to accrue in terms of a reduced *burden of dependency* and a higher *saving rate* by a relatively younger population belonging to the potentially working age group that will also contribute more to the generation of national income. It must however be conceded that such a potential 'demographic dividend' can be effectively reaped if and only if the potentially working age groups are imparted with requisite skills and training to get productive employment and there shall be sufficient employment opportunities in the economy. For, to the extent the potential contributors to saving and national income belonging to the younger and working age groups fail to get gainful employment or remain *underemployed* and *disguisedly unemployed* with negligible marginal productivity, their growth generating capacity will be curtailed thereby putting a serious question mark on the feasibility or viability of a demographic dividend in the concerned economy.

Given the high incidence of unemployment and underemployment prevalent in developing countries such as India coupled with poor *skill formation* and inadequate thrust on *human resource development* in their economies, such a possibility whereby a potential demographic dividend may not be fully realised or reaped is neither remote nor ruled out!

The fact of the matter is that there typically is such a backlog of unemployed from the potentially working age groups of the labour force in these economies that merely adding more economic agents to that group cannot be reasonably considered as a *sufficient condition* for availing of any possible demographic dividend. In this connection, James (2008) observes that there is near universal agreement that there is nothing automatic about the links between demographic change and economic growth.

Further, it must also be realised that the relatively younger workforce at present will eventually grow old and apart from a decline in birth rates, the process of economic development is invariably associated with a fall in mortality rates too. This clearly suggests that any possible 'demographic dividend' is at best a 'transient phenomenon' which is likely to wither away in due course. In view of this, it becomes essential to identify the conditions under which a 'demographic dividend' can be effectively reaped by a developing economy like India in time before it disappears or withers away on its own due to its very transient nature.



## **How to Ensure that Potential Benefits of a 'Demographic Dividend' are Fully Reaped?**

As is clear from the discussion of preceding section that some developing countries including India at the present juncture of their demographic transition have come across an opportunity to derive a possible 'demographic dividend' in terms of a higher proportion of younger and potentially working age groups in their population who could contribute more to saving and generation of national product thereby bringing about a higher level of economic growth and development. But as is also clear from the previous section that the existence of a potential *demographic dividend* is neither a matter of foregone conclusion nor complacency on the part of such developing countries. For, the underlying economic environment prevalent in their economies is not conducive to the fuller exploitation of any dividend arising out of demographic trends due to the existence of large scale unemployment and underemployment coupled with poor human resource development.

In this context, Basu and Basu (2014) caution that in case suitable employment opportunities are not provided in time to the potentially working age groups, the concerned economies could quite conceivably end up having a 'youth bulge' or a 'demographic disaster' instead of deriving any 'demographic dividend'. Likewise, with reference to the case of Indian economy, Misra and Suresh (2014) contend that employment intensive growth is crucial for meeting the demographic dividend challenge. Using a similar line of reasoning, the 'Economic Survey 2012-13' released by the Ministry of Finance, Government of India (2013) had advanced the perspective of growth pessimists by pointing out the significance of creating productive jobs with a view to effectively seizing the demographic dividend in the case of Indian economy.

Given the transient nature of such a 'demographic dividend' as highlighted in the preceding section, the developing countries like India must address these issues on an urgent basis so as to be in a position to derive demographic dividend in time and reap all its potential benefits to promote growth, development and prosperity of the public at large. Towards this end, the first priority area shall be to lay due emphasis on promoting education and training among potential workforce especially vocational education so that at a reasonably early age the economic agents acquire practical skills for getting gainful employment.

Side-by-side, it is also essential to expand employment opportunities in the economy through various officially sponsored programmes of the State such as public work projects and employment-guarantee schemes. For the smooth conduct of these schemes

and welfare-oriented programmes of the government, it is imperative to lay due emphasis on their proper implementation and root out any possible inefficiency, red-tape, corruption or leakages in this respect.

Still another public policy that can be reasonably expected to go a long way in ensuring fully reaping all potential gains of a demographic dividend on the part of the State is to provide liberal, concessional and timely financial assistance to small and marginal farmers, artisans, village & cottage industries, small-scale industries, budding entrepreneurs and the like especially from rural areas so as to promote 'self-employment' in the economy.

If and only if the developing countries like India would pay adequate attention to the aforementioned aspects concerning human resource development and employment generation, would they be in a position to fully reap all the potential benefits of a 'demographic dividend' in their economies in the coming future before it withers away due to its transient nature.

## **CONCLUSION**

The link between demography and development has in recent years come to the fore due to the possibility of a 'demographic dividend' that some developing economies including India could potentially derive at their present stage of demographic transition on account of their population getting tilted in favour of relatively younger and working age groups. As these younger age groups can save more and contribute more to the flow of national income, the resulting increase in investment and productive capacity of the economy is likely to go a long way in bringing about economic growth, development and prosperity in the concerned economies.

This however is only a possibility that may not fructify in case the concerned economies do not pay adequate attention to imparting the requisite skills & training on the young and potentially working age groups so as to get meaningful and gainful employment. Such a strategy of 'human resource development' shall be supplemented by sufficient promotion of 'self-employment' in the economy coupled with effective conduct of public works programmes and officially sponsored employment guarantee schemes. It is only through a multiplicity of such mutually reinforcing and optimal set of policies that developing countries like India at their present juncture of demographic transition will be successful in fully availing of and reaping all possible gains of a 'demographic

dividend' in the coming future well in time before it withers away as by its very nature, it is a transient phenomenon.

In addition to deriving a demographic dividend, however, the developing countries in general and India in particular shall try to put a check on their birth rates so as to effectively move towards the third and final stage of demographic transition signifying the attainment of the stage of being a developed economy. The best way to achieve this is to try to control high fertility rates by paying requisite attention to the *correlates of declining fertility* and accordingly lowering infant mortality rates, promoting urbanisation and encouraging female participation in the workforce. But looking at the complex dynamics whereby demography and development impinge on each other especially in the case of developing world, a major breakthrough in controlling fertility rates in developing countries like India can come about *via* the provision of social security for old age from the side of the government in the form of social safety schemes such as old-age pensions. Once this is accomplished, poor households and those working in the informal & unorganised sectors would stop looking forward to their progeny as an *instrumental value* or means of providing financial support in their old age thereby reducing their incentive to have larger families.

In this way, just like the case of developed countries, the population of even the less developed and developing countries can be effectively utilised to serve as human resources as also human capital instead of acting or posing as a major impediment to the process of economic growth and development.

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# CORPORATE GOVERNANCE AND SUSTAINABILITY REPORTING- RESPONSIBILITY TOWARDS STAKEHOLDERS AND SOCIETY: A STUDY OF TOP 10 INDIAN COMPANIES

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*This study analyses the corporate governance sustainability initiatives of India's top 10 companies across 22 variables related to governance and sustainability. The study reveals significant variance in reporting of CSR expenditure incurred by companies and also the relevance importance of Corporate Sustainability Initiatives. The highest reported variables were related to corporate governance, followed by those related to CSR initiatives and measures to improve operative efficiency. Most initiatives in the area of CSR focused on four areas—education, healthcare, environment sustainability, infrastructure and rural development. Operational measures included resource conservation and sustainable development (energy, water, minerals, land) and management of waste (emissions, solid waste, water). There were only 20% companies who were found to report on the exact expenditure on research and development. The differences in CSR expenditure were also striking, however it was appreciating that all the companies increased their CSR budget figures from previous years. The mining, energy, and information technology and software sectors outperformed the other sectors on most indicators. The banking and finance sector had not disclosed as much as the others. The study also highlights areas for improvement. Voluntary sustainability reporting was still limited but was largely followed in most of the companies. Disclosures on CSR expenditure and contributions to disaster relief and donations were also not satisfactory.*

**Key words:** Business Responsibility, Corporate Social Responsibility (CSR), Corporate Philanthropy, Shareholder's Value, Sustainable Development

## INTRODUCTION

This research study analyses the sustainability initiatives of India's top 10 companies as disclosed on their Websites, including the annual reports, sustainability reports, policies, and various codes. The objectives of this study are to investigate what type of

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information related to governance, sustainability and business operations companies were currently being disclosed and to map the type of information to the industry type and sector.

### **Corporate Governance and Corporate Sustainability: The Concept**

The practice of Corporate Responsibility is not new to companies in India however, with the passage of time the Companies Act, 2013 has mandated Corporate Social responsibility for companies in India to promote greater transparency and disclosure. The industry has responded positively to the reform measure undertaken by the government. Both CSR and Corporate Sustainability are derived from the concept of sustainable development.

Sustainable development is defined by the Brundtland Commission as, *“development that meets the needs of the present without compromising the ability of future generations to meet their own needs”*. Each definition that currently exists underpins the impact that businesses have on society at large and their societal expectations from them. Although the roots of CSR lie in philanthropic activities such as donations, charity, relief work, etc. of corporations.

Globally, the concept of CSR has evolved and now encompasses all related concepts such as triple bottom line, corporate citizenship, philanthropy, strategic philanthropy, shared value, corporate sustainability and business responsibility. This paper will highlight the emerging management's issue while following CSR practices. It will not only highlight current issues of CSR but will also pave way for understanding managerial issues while dealing with such practices.

### **RATIONALE OF THE STUDY**

CSR is not a new concept in India where top companies like the Tata Group, the Aditya Birla Group, and Indian Oil Corporation have been involved in serving the community ever since their inception. CSR has become increasingly prominent in the Indian corporate scenario because organizations have realized that besides growing their businesses it is also vital to build trustworthy and sustainable relationships with the community at large.

Corporate Social Responsibility (CSR) has acquired new dimensions in recent years.

The Indian context is distinct. On the one hand, there are long-standing traditions of respect for family and social networks, and high value placed on relationships, social stability and education.

Diverse religions and cultures also bring distinct attitudes towards community social behavior and engagement as well as support and philanthropic contributions. Governments in the region also play distinct roles – often stronger in terms of influence on economic and social priorities, yet not as advanced in terms of social safety nets.

## METHODOLOGY

In the present study, specific sustainability initiatives taken up by the companies under study as disclosed on their websites and in their annual reports, sustainability reports, policies, codes, and so on were considered for analysis. In general, Corporate Sustainability Initiatives (CSIs) were defined to include:

- Any voluntary action taken by the company to ensure reduced impact of their operations on the environment or the society beyond legal compliance;
- Those initiatives that are embedded in the core or mainstream business or are carried out by an extended arm of the corporate; and
- All initiatives that depict that the company in general is concerned about the social and environmental aspects along with the economic aspects explicit in its strategic behaviour or planning.

The research findings regarding the Corporate Sustainability Initiatives (CSIs) incorporated by the sample companies are reported in three sections—Basic Organisational and Managerial; Operational functions; and Corporate Social Responsibility (CSR). These sections are briefly described in Figure 1.

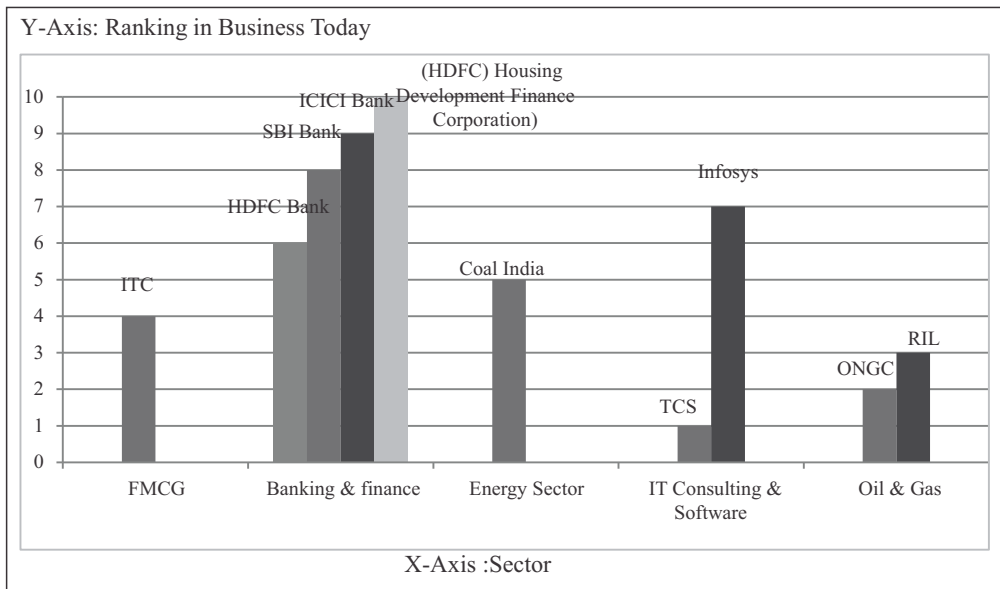
### Sample Selection and Data Collection

In order to review the kind and extent of initiatives undertaken by the prominent companies of India to address the issues outlined earlier, the present study was carried out on a focus group of top 10 private sector companies, as rated by *Business Today 500* (BT 4 500) in 2014. For managing and analysing the data, these companies were classified into 5 different sectors as shown in Figure 2 and Table 1.

**Figure 1: Research Findings Related to Corporate Sector's Initiatives**

<p><b>Basic Organisation &amp; Managerial function</b></p>	<p>It includes findings on organizational structures within the company to execute the Corporate Sustainability Initiatives and various ways to manage it like policies, codes of conducts, audits and certifications, communications and adherence to international voluntary sustainability principles and codes of conduct.</p>
<p><b>Operative functions (Core + Non-Core)</b></p>	<p>The findings with regard to greening and ethically advancing their operations and reducing their negative environmental impacts are included in this section.</p>
<p><b>Corporate Social Responsibility</b></p>	<p>Initiatives to improve the quality of life of people and society at large are highlighted in this section. These initiatives are not directly affecting core business practices of a company as such however, they are a part of Public Relations, CSR commitments, or investments in particular market segments which can be tapped in the future.</p>

**Figure 2: Sector-wise Distribution of Top 10 Companies in the Study Sample**



SOURCE: Business Today ranking of valuable companies 2014



**Data Collection and Analysis**

For the present report, data on the sustainability initiatives undertaken by these companies was collected from their respective Websites and/or from the information provided in their annual reports or CSR/sustainability reports. The period of data collection was year 2014. The latest reports provided on their Websites were referred to for both the sectors and respective companies in order to analyse information on their sustainability initiatives.

**Table 1: Sector-wise classification of companies**

<p><b>FMCG</b> <b>ITC</b></p>	<p><b>Banking &amp; Finance</b> <b>HDFC Bank</b> <b>ICICI Bank</b> <b>Housing Development Finance Corpn(HDFC)</b> <b>SBI</b></p>	<p><b>Energy sector</b> <b>Coal India</b></p>
<p><b>IT Consulting &amp; Software</b> <b>Tata Consultancy Services</b> <b>Infosys</b></p>		<p><b>Oil &amp; Gas</b> <b>Reliance Industries Limited(RIL)</b> <b>ONGC</b></p>

Based on the information available, an initial list of different parameters was prepared, covering almost all the aspects of economic, social, political, technological and environmental responsibility initiatives that an organisation could undertake in order to operate in a sustainable manner.

After further analysis, this list was refined to include a total of 22 variables. Overall, these 22 variables fall into the three sections that were described in Figure 1 (as shown in Table 2). The data was then analysed overall as well as sector/company-wise. The charts and trends arising from this data analysis led to interesting insights, which are shown in the report.



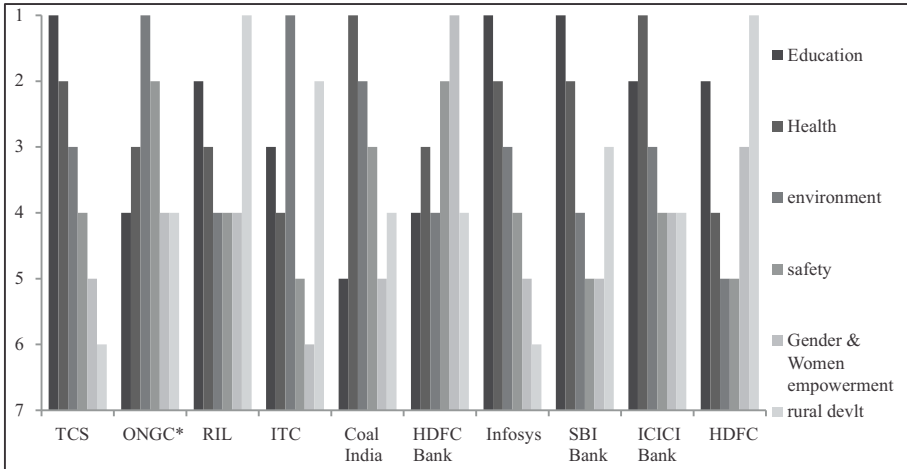
Hunger and poverty	√	√	√	√	√	√	√	√	√	√
Education	√	√	√	√	√	√	√	√	√	√
Gender & empowering women	√	√	√	√	√	√	√	√	√	√
Health	√	√	√	√	√	√	√	√	√	√
Environmental sustainability	√	√	√	√	√	√	√	√	√	√
Vocational skills	√	√	√	√	√	√	√	√	√	√
Infrastructure develt	√	√	√	√	√	√	√	√	√	√
Social Buss Projects	√	√	√	√	√	√	√	√	√	√
Disaster relief	√	√	√	√	√	√	√	√	√	√
Contribution for socio-eco devlt., relief for SC, ST, OBC, minorities & women	√	√	√	√	√	√	√	√	√	√
<b>RANKINGS AS PER BUSINESS TODAY</b>	<b>TCS</b>	<b>ONGC</b>	<b>RIL</b>	<b>ITC</b>	<b>Coal India</b>	<b>HDFC Bank</b>	<b>Infosys</b>	<b>SBI</b>	<b>ICICI</b>	<b>HDFC</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Names of the BST top 10 companies in various sectors</b>										

An analysis of the CSIs that were most reported by companies revealed that the difference lay not in which CSIs were reported (in fact, the same or similar CSIs were the most reported for both groups) but the extent of data reported was slightly different. This was probably due to difference in the amount spent on CSR activities by the companies. Companies having higher PAT reportedly spent higher.

Below, figure 4 depicts the relative importance of various CSI initiatives for companies in order of their ranks. It was found education, health and environment is the prime areas of CSR for all the companies especially the companies in IT consulting and software sector. Rural development was an important CSI for only 40% companies as per the findings.

Y-Axis:Ranks

**Figure 4: Top 5 Reported CSIs for the Companies**



**BASIC ORGANISATIONAL & MANAGERIAL FUNCTIONS**

The various CSIs that fall under this category are listed in Table 3.

**Table 3: Basic organisational & managerial CSI's**

CSI's	Description
<b>Organisational Structure (BOD)</b>	<ul style="list-style-type: none"> <li>• CSR department</li> <li>• R&amp;D department</li> <li>• Health &amp; Safety and Environment with sustainable development Department.</li> </ul>
<b>Policies</b>	<ul style="list-style-type: none"> <li>• Sustainability Policies</li> <li>• Policies related to CSR</li> <li>• Environment, health &amp; safety</li> <li>• Human resources</li> <li>• Quality, and</li> <li>• Any other policies related to corporate governance</li> </ul>
<b>Codes of Conduct</b>	<ul style="list-style-type: none"> <li>• Compliance with laws</li> <li>• Environment</li> <li>• Workforce diversity</li> <li>• Non - discrimination</li> </ul>

	<ul style="list-style-type: none"> <li>• Health &amp; safety standards</li> <li>• Societal standards</li> <li>• Whistle blowing</li> <li>• Adherence to voluntary principles</li> <li>• Global Reporting Initiative (GRI), United Nations Global Compact (GC), Carbon Disclosure Project and Millennium Development Goals (MDGs), and sector-specific initiatives</li> </ul>
<p><b>Certifications, Audits&amp; Compliances</b></p>	<ul style="list-style-type: none"> <li>• Secretarial standards</li> <li>• Standards on Auditing (SA)</li> <li>• International Financial reporting Framework (IFRS)</li> <li>• Verification and certification of current systems and practices to identify progress towards sustainable business practices</li> <li>• AA1000,</li> <li>• ISO 20000:2011(Service Mgt), ISO 9001:2008 (Quality Mgt) and the (latest Security Mgt Standard)ISO27001:2013,ISO 14001:2004 (Environmental Mgt) an</li> <li>• BS OHSAS18001:2007 (Occupational Health and Safety Mgt),</li> <li>• Quality certification,</li> <li>• SA8000</li> <li>• Six Sigma</li> </ul>
<p><b>Stakeholders</b></p>	<ul style="list-style-type: none"> <li>• Communication with employees about sustainability</li> <li>• Consumers about products and services (safe usage, good quality, pricing)</li> <li>• Investors about strategic alliances, business decisions, returns, shareholding, Audit Report, Annual Return, Directors Report</li> </ul>

**Board of Directors, Policies, Code of Conduct, Certification and Audit**

In this study, the focus was on the existence of departments such as Health, Safety, and Environment (HSE) department along with Sustainable

Development department, CSR departments, or centres within a company that focus on these respective areas as given in Table 4 below:

**Table 4: Role of Board of directors & CSR Committee**

ROLE OF THE BOARD	ROLE OF CSR COMMITTEE
Form a CSR committee	Three or more directors with at least one independent director
Approve the CSR policy	Formulate and recommend a CSR policy to the board
Ensure implementation of the activities under CSR	Recommend activities and the amount of expenditure to be incurred
Ensure 2% spend in CSR activities	Monitor the CSR policy from time to time
	Disclose reasons for not spending the amount (if applicable)

**Ethics and Compliance Committee:** for Prevention of Insider Trading and Code of Corporate Disclosure Practices (“Insider Trading Code”) and responsible for implementing the CSR initiatives of the company such as:

- Robust Enterprise Resource Planning System
- Compliance report on Corporate Governance
- Business Responsibility Report (BRR) as mandated by Securities and Exchange of Board of India (SEBI) on Environment, Sustainability and governance (ESG) performance
- GRI 3.0 Guidelines on Sustainability Reporting

**Health, Safety and Sustainability Committee:** This department would be responsible for maintaining the safety of the employees as well as the factories. The responsibilities could include training manpower, conducting audits and mock drills, framing policies, conducting health check-ups, and other initiatives that improve safety steps.

### **Risk management Committee**

**CSR Committee:** It was there in various companies for ensuring sustainability, CSI's, Corporate Governance Compliance.

## Compliances

The Ministry of Corporate Affairs (MCA) had introduced the Corporate Social Responsibility Voluntary Guidelines in 2009. These guidelines have now gained legal sanctity under Companies Act, 2013. Section 135 of the 2013 Act, seeks to provide that every company having.

- **Net worth > 500 Crores or, turnover > 1000 Crores or, Net profit > 5 Crores** during any financial year shall constitute the CSR committee of the board to comprise of **3 or > directors**, out of which, **at least 1 director** should be an independent director.

The board shall disclose the contents of the policy in its report, and place it on the website, if any, of the company. The Companies Act, 2013 mandates that these companies would be required to spend at least 2% of the average net-profits of the immediately preceding three years on CSR activities, and if not spent, explanation for the reasons thereof would need to be given in the director's report (section 135 of the 2013 Act). Table 5 below shows the amount of money spent on CSR in F/Y 2012-2013, F/Y 2013-2014 and the projected amount for F/Y 2014-2015.

**Table 5: Amount spent on CSR in top 10 companies and the projections for coming year**

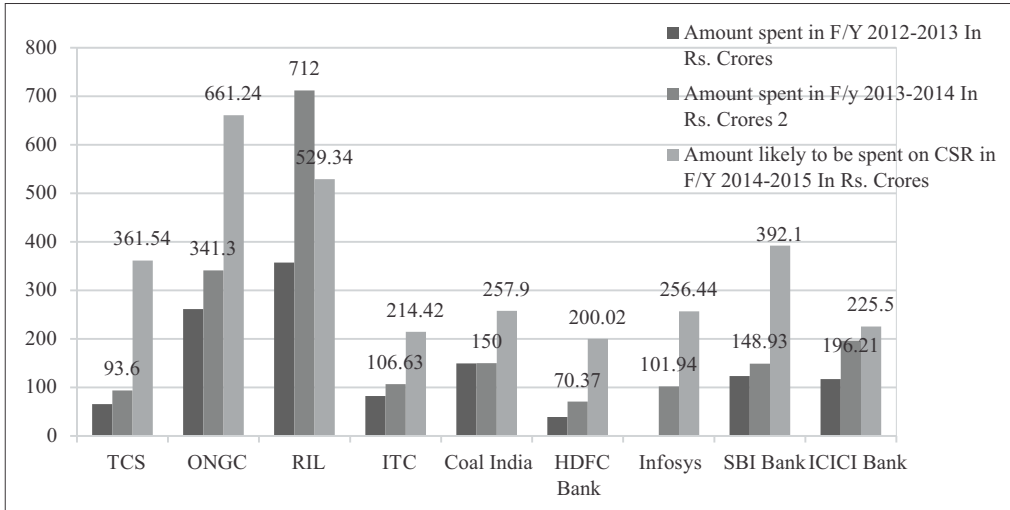
Amount “in Rs. Crores”

Company	CSR amt. F/Y 2012-2013	CSR amt. F/Y 2013-2014	Amount likely to be spent in F/Y 2014-2015	PBT for F/Y 2013-14
TCS	65.21	93.6	361.54	25,401.86
ONGC	261.58	341.3	661.24	32,431.93
RIL	357.05	712	529.34	27,818
ITC	82.34	106.63	214.42	12659.11
Coal India	149.55	150 approx	257.9	22879.54
HDFC Bank	39.01	70.37	200.02	NA
Infosys	NA	101.94	256.44	NA
SBI Bank	123.27	148.93	392.1	21325.54
ICICI Bank	117	196.21 approx	225.5	NA
HDFC	NA	195 approx	NA	7440.24

Source: Company Board Report of BST Top 100 companies on their respective websites

The results in Figure 5 showed that 90% of the company's projected an increase in the amount to be spent in CSR activities for financial year 2014-2015. This is a good indicator of good CSR practices in top 10 Indian companies. Companies having higher PAT are likely to apportion higher amount in CSR budget.

**Figure 5: Comparison of amount spent on CSR in different financial years**



Source: Company Board Report of BST Top 100 companies on their respective websites

### Communication with Employees and Stakeholders

Every company as per the findings in the study communicated the policies, functioning, and other aspects to its employees through various mediums such as notices, emails, newsletters, and so on. Almost every company provided customer services to their customers and had a customer feedback system and a complaint system for relationship management.

**“The higher the shareholder value, the better it is for the company and management”.**

Study revealed that almost all these companies follow good and transparent disclosure practices. Information required by various stakeholders in the form of Annual Returns, Director's Report, Compliance report on Corporate Governance, Sustainability Reports, Secretarial compliance reports, etc was adequately disclosed, however in certain companies the exact amount spent on CSR could not be known.



**OPERATIVE FUNCTIONS (Core+Non-Core)**

**Table 6: Operative functions (Core+ Non-Core)**

CSI's	Description
<b>Workplace</b>	<p>It is essential to create an environment in which employees can fully demonstrate their abilities and work with enthusiasm with facilities of:</p> <ul style="list-style-type: none"> <li>• Childcare leaves,</li> <li>• Maternity leaves,</li> <li>• recreation like movies, weekend parties,</li> <li>• flexi-working hours for females,</li> <li>• maximum of 8 working hours a day,</li> <li>• Canteen facility and so on.</li> </ul>
<b>Research &amp; Development</b>	<p>Other major steps taken by these companies were:</p> <ul style="list-style-type: none"> <li>• collaborating with R&amp;D institutions</li> <li>• Efficient finance allocation</li> <li>• Staff allocation, and</li> <li>• Other sustainability initiatives</li> </ul>
<b>Technology</b>	<p>Most of these companies emphasised on usage of various forms of renewable energy: Alternate fuels, solar energy, wind energy</p>
<b>Health&amp;Safety</b>	<ul style="list-style-type: none"> <li>• Blood Donation Camps</li> <li>• Building Hospitals: Building hospitals/clinics to provide easy access to healthcare facilities to the communities or society.</li> <li>• Eye Check-Up Camps</li> <li>• Healthcare Training Programmes: Organising training programmes for the people of the community on hygiene, childcare, nutrition, maternal care, etc</li> <li>• Controlling and prevention of air, noise, water, and soil pollution</li> <li>• Reducing emissions, eliminating toxic and hazardous elements</li> <li>• Managing solid waste, waste water and by-products efficiently</li> <li>• Developing green belt</li> <li>• Combating climate change through: Carbon trading, clean development mechanisms, reduction in CO2 emissions, reduction in other greenhouse gases (GHGs), and CO2</li> </ul>
<b>Resources</b>	<p>These companies took the following steps towards recycling and conservation of resources:</p> <ul style="list-style-type: none"> <li>• Product materials, packaging, waste materials, water, energy, offering take-back facility for recycling</li> <li>• Initiatives carried out for greening the supply chain: End-of-life initiatives (recycling and return facilities), efficient use of raw materials, vendor management</li> </ul>

## Workplace

Findings show that companies have begun to realize how important the work-life balance is to the productivity and creativity of their employees.

Vision of companies was:

- All workers are free from exploitation and discrimination,
- Enjoy conditions of freedom, security and equality

The Ethical Trading Initiative (ETI) is a leading alliance of companies, trade unions and NGOs that promotes respect for workers' rights around the globe. Results show the companies taking a series of steps to improve quality of life of workers and working conditions over time as given in Table 6.

## Research & Development and Technology

As per the findings of study companies in IT and Software sector were more likely to have their own research and development (R&D) centres to conduct research on improving their manufacturing processes in order to conserve energy and water, remove toxic elements, improve packaging and product development as given in Table 7 below.

This section looks into the R&D efforts of the companies that were studied and examines what measures they adopted to make their processes and products environment friendly. The major focus of this section is R&D from a sustainability perspective.

**Table 7: Clear figures of Research and development expenditure for F/Y 2013-2014**

Company	Total R&D and Innovation expenditure	R&D and innovation exp. as % of total turnover
TCS	913.76	1.12%
ITC	137.28	.29%

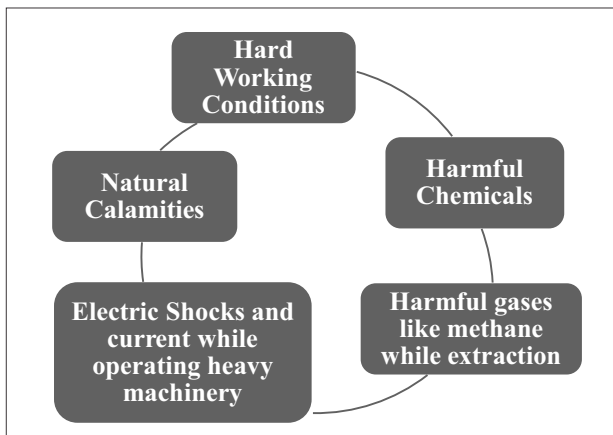
## Health & Safety

The common initiatives implemented by companies included taking care of health and safety (HS) of employees and society at large through HS policies, HS training, and

other HS initiatives, creating safety committees, setting standards, conducting meetings, reviewing procedures, and so on.

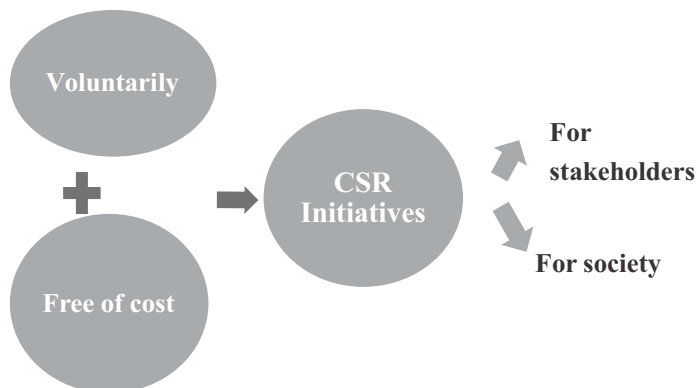
As per the findings of study focus on safety is more important for the manufacturing and the heavy industries sectors compared to the services sectors as presented in figure 6 (also given in Figure 4 above).

**Figure 6: Reasons for safety in manufacturing sector as per findings of the study**



## CORPORATE SOCIAL RESPONSIBILITY

**Figure 7: Concept of CSR Philanthropy**



As per the findings most companies contributed to welfare and CSR activities in form of donations of money, goods, time, and/or effort to support a beneficial cause, with a defined objective and with no financial or material reward to the donor.

Table 8 summarises the findings of Sustainability Initiatives taken by top companies on Corporate Social Responsibility.

**Table 8: CSIs Related to Corporate Social Responsibility**

CSI's	Description as per findings in the study
<b>Education&amp; Vocational skills</b>	<ul style="list-style-type: none"> <li>• Building schools</li> <li>• Scholarships</li> <li>• Sponsoring schools</li> <li>• Promotion of primary</li> <li>• Secondary and higher education</li> </ul>
<b>Gender &amp; empowering women</b>	<ul style="list-style-type: none"> <li>• Improve quality of life</li> <li>• Livelihood initiatives like professional trainings, training and activities for children, elderly and differently-abled people</li> <li>• Promoting sports</li> <li>• Rural development</li> <li>• Empowerment of women</li> </ul>
<b>Health</b>	<ul style="list-style-type: none"> <li>• Spread awareness about diseases, maternal health and child mortality</li> <li>• Set up clinics for treatments</li> <li>• Training programs</li> <li>• Blood donations</li> <li>• Eye check-up camps</li> <li>• Build hospitals</li> </ul>
<b>Environmental sustainability</b>	<ul style="list-style-type: none"> <li>• Environmental conservation through awareness programs</li> <li>• Nature conservation</li> <li>• Water conservation</li> <li>• Forestry</li> <li>• Afforestation</li> <li>• Landscaping</li> </ul>
<b>Infrastructure development</b>	<ul style="list-style-type: none"> <li>• Constructing roads</li> <li>• Sanitation</li> <li>• Sewerage</li> </ul>

<p><b>Social Business Projects</b></p>	<ul style="list-style-type: none"> <li>• Conservation of cultural traditions and heritage</li> <li>• Promotion of local art and culture such as handicrafts, pottery, dance forms, music forms, and textiles, and</li> <li>• Support them by providing the infrastructure or,</li> <li>• Helping them to sell their crafts so that they can make a living all fall under this section.</li> </ul>
<p><b>Disaster relief</b></p>	<ul style="list-style-type: none"> <li>• Supporting communities that are hit by disasters</li> <li>• Donations to funds or in the form of food, water, medicines, and clothes</li> <li>• Restoring the infrastructure of places affected by disasters</li> <li>• Infrastructure development</li> <li>• Relief work</li> <li>• Volunteering</li> <li>• Giving training in masonry, electrical work, agriculture, arts and crafts, and tailoring as well as running schools, clinics, and hospitals</li> </ul> <p>Results showed that majority of firms sparsely contributed to disaster relief. The funding in CSR towards disaster relief needs to be raised.</p>
<p><b>Contribution for socio-economic development, relief of the SC and ST, OBC, minorities and women</b></p>	<ul style="list-style-type: none"> <li>• Charity</li> <li>• Cash donations including donations for places of worship</li> <li>• Offering cash or material donations</li> <li>• Building hospitals</li> <li>• Schools</li> <li>• Old age homes</li> <li>• Sponsoring programmes</li> </ul> <p>However, as per the findings of study there was lack of transparency in disclosure of amount contributed by these companies primarily because the data is publically available.</p>

## **Education and vocational skills**

The findings revealed that almost all the companies spent a significant portion of their CSR budget on providing education and vocational skills primarily because of the need of trained professionals to run them. The amount spent in F/Y 2013-2014 on education out of CSR budget is given in Table 9 below.

Most of these companies are following the Mantra of “**Get Paid for Doing Good**”. The initiatives taken by companies:

- Building schools free of cost or at a minimal cost
- Scholarships to underprivileged/meritorious students
- Helping schools to run efficiently by providing books, uniform, shoes, and bags to children who cannot afford them or providing benches, blackboards, water coolers, and other infrastructure to schools.
- Free education to students who cannot afford it
- Providing free meals
- Promote secondary education such as supporting/building secondary schools in localities that do not have one.
- Encouraging children to go to school by spreading awareness, helping or training teachers, providing infrastructure for the school.
- Setting up or supporting higher or technical education institutes like vocational training centres, engineering colleges and schools offering training in other fields such as management.

**Table 9: CSR Finance Allocation on CSIs for F/Y 2013-2014 as a % of PAT****(Amount spent “in Rs Crores” on CSR activities for F/Y 2013-2014)****\*Denotes approximate figures**

Company	Education	Health	Envt.	Rural devlt.	Other activities	Total	PAT	Total Spending on (CSR) as % of PAT
TCS	51.75	30.77	11.08	-	-	93.6	19163.87	0.48%
ONGC	-	-	-	-	-	341.3	22,094.8	1.54%
RIL	78.32	420.08		163.7	49.84	712	21984	3.24%
ITC	-	-		-	-	106.63	8785.21	1.21%
Coal India	-	-	-	-	-	150*	15111.67	1%*
HDFC Bank	-	-	-	-	-	155.14	8478.38	0.83%
Infosys	-	-	-	-	-	101.9*	10194	1%*
SBI Bank	-	-	-	-	-	148.93	10891.17	1.37%
ICICI Bank	-	-	-	-	-	196.2*	9810.48	2%*
HDFC Housing Devlt Finance Corp	-	-	-	-	-	195*	5453.76	2%* based on average PAT of 3 F/Y

Source: Annual report of top 10 Indian companies on their respective website

The proportion of amount spent on various CSI's by top 10 companies on Education, Poverty, Health & Safety, Rural Devlt, Women empowerment (given in Table 9) which fall under this category are (listed in Table 8 above).

### Infrastructure Development

Infrastructure development formed a crucial part of the CSR strategy of many of the companies that includes rural development and upliftment of backward regions. It is interesting to note that FMCG companies were found to take highest initiative because, to expand the market size of consumers FMCG must move to rural areas and unless it

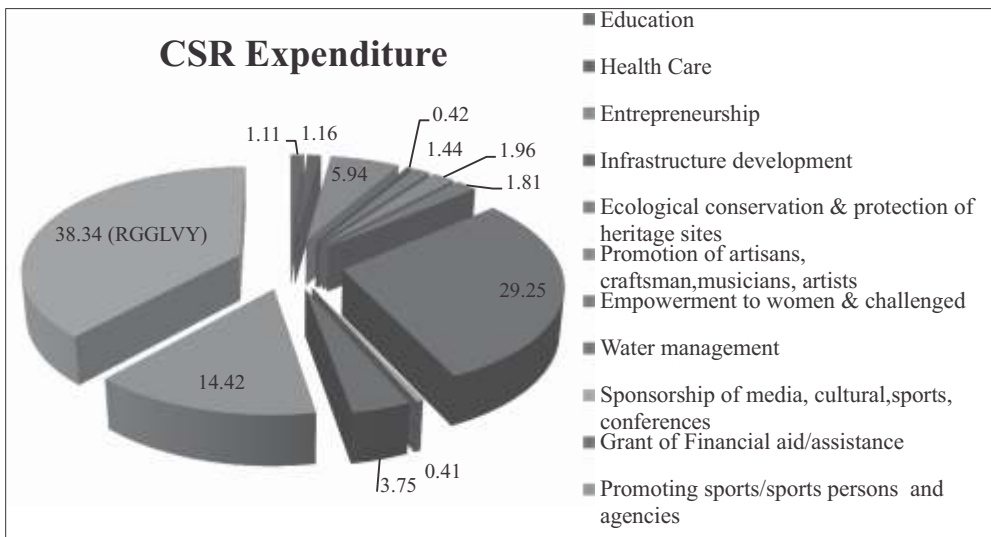
spends some portion in CSR it would be difficult to create image in the minds of consumer.

**Environmental Sustainability**

The results depicted in environmental initiatives were significant. Almost all the companies at top contributed towards it. Companies have understood for a Better Tomorrow it is essential to have sustainable use resources. Many companies organised clean-up days, healthcare practices, car pool, greater use of public transport, planting trees and protection of biodiversity amongst other initiatives.

**Other CSR initiatives**

**Figure 8: Percentage (%) of spending in CSR activities- ONGC**



The above figure shows the overall CSR expenditure incurred by ONGC for the Financial Year 2013-2014. Results show that maximum contribution was made towards socio-economic development programmes followed by management of water resources in ONGC. It is interesting that the company spent on almost all CSR activities during the year.

**SUMMARY AND CONCLUSIONS**

This study is analytical review of publically available, sustainability-related information disclosed by India's top 10 companies in 5 industry sectors across 22



variables. The analysis was broadly divided into three parts—Basic Organisational and Managerial; Operative (Core+ Non-Core) function; and Corporate Social Responsibility

Overall, the study highlights some interesting trends. There was a strong focus on corporate governance in all the companies surveyed. The companies published reports based on widely recognised initiatives, such as the Global Reporting Initiative, however this is not an indicator of transparency in data. Disclosures on actual amount of CSR expenditure and contribution towards donations were quite low. It is in the interest of companies to become more transparent in order to build greater stakeholder trust.

Companies in heavy-industry sectors such as oil, metals and mining, outperformed other sectors on most indicators. This could be due to their need for a social licence to operate. Some sectors such as banking and finance had not disclosed as much as the others. A notable exception was the IT and software sector, which performed well on several indicators and reported extensively. A generous explanation for this could be that they are driven by the need to attract and retain employees as well as global benchmarking.

The study highlights the following aspects related to Corporate Governance and sustainability reporting in India. After governance, the most frequently reported initiatives were CSR-related (healthcare, education, environment, etc.), operational-driven (Research & Development, health and efficient utilisation of resources). Almost all the companies did well in sustainable reporting, thus indicating a greater degree of reporting transparency at the top.

### ***Basic organisational and managerial function***

Almost all the companies had a published corporate governance policy. Most of these companies now have HSE committees along with sustainability department which means increasing concerns about Corporate sustainability Initiatives and hence, more transparency in reporting.

### ***Operational (Core+ Non-Core)***

Most initiatives appeared to focus on two things—sustainable utilisation of resources (renewable energy, natural resources) and management of waste (disposal, eco-friendly measures). The most popular initiative was energy conservation. This high percentage could be linked to the economic benefits (such as lower operating costs) that result from implementing these initiatives.

Renewable energy adoption is also growing, with leading sectors here included the oil and gas and coal. Health, safety and providing training for employees in the work place were the other focus areas. The study showed two areas that companies can improve on. First, only 20% of the companies currently disclosed information on Research and Development in their report. This could also potentially be an area of competitive advantage.

### ***Corporate Social Responsibility***

More than 90% of the companies studied focussed on four core CSR areas—education, health, environment & rural development. For education, the focus was on improving access to as well as the quality of education and IT companies performed very well in this area. Either through sponsorship or scholarship to deserving and unprivileged students. Most of the healthcare CSR initiatives included blood donation drives, eye check-up camps, maternal healthcare, building hospitals, and so on.

The heavy industries like ONGC, Coal India and RIL primarily focussed on environmental sustainability. For FMCG companies, rural infrastructure and upliftment were the main focus areas. Interestingly, FMCG companies led the way here. Other CSR initiatives included a focus on disaster relief programs, contribution to donations which were taken up by banking sector. An area for improvement for these companies is increased transparency and proportion of Profit after Tax as contribution to CSR initiatives and donations, which could help drive more efficient CSR programs.

Corporate Social Responsibility is not only a necessity for businesses now but also social consciousness towards society as a good citizen. In big organisations it has been made mandatory due to their capability to spend a handsome amount and resources for betterment of society, which is done at managerial level. Thus, it has now become the responsibility of managers to adhere to CSR norms of their organisation be it in schools, colleges, offices, factories, industries, etc. Thus, results show that CSR is not only fulfilling the legal formality towards stakeholders but also benefitting the companies in their long race to be more competitive.

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## **DETERMINANTS OF PRE-PURCHASE SEARCH BEHAVIOUR AMONG RURAL AND URBAN CAR BUYERS: A COMPARATIVE STUDY OF INDIA**

Saurabh Grover\*

*The study of consumer behavior involves the study of how people organize the acquired information and its use to make purchase decisions in case of rural consumers; it's somewhat difficult to understand their view while making choices among different products. Pre- purchase search behavior among car buyers has been studied and comparison of urban and rural buyers is carried out. Factor analysis, weighted average scores and independent sample T-test has been applied on the data of 477 respondents from Punjab region. "Out of Store Activity", "Others' Involvement" and "Dealer's Visits" are the main factors that make up the search behavior. It is found that urban and rural consumers are different in their attitude towards first two factors where as they have consensus as far as third factor is concerned.*

The study of consumer behavior deals with the decision process and physical activity, individuals engage in when evaluating, acquiring, using, or disposing of goods and services (Loudon and Bitta, 2002). It is the field of study that focuses on consumer activities. Consumer behaviour should be primary focus of every aspect of the firm's marketing program. (Blackwell, Miniard and Engel, 2007). Behaviour of consumer is influenced by cultural forces, social factors like family, reference groups etc. and perceptions (Sternthal et.al 1982). Consumption is a key to understand why consumers buy products (Blackwell, Miniard and Engel, 2007). Consumer choices concerning the selection, consumption and disposal of products and services are often difficult and are important to the consumer, to marketers, and to policy makers. As a result, the study of consumer decision processes has been a focal interest in consumer behavior for over 30 years (Dogra&Ghuman 2008).

Urban population of India is concentrated in 3200 cities and towns, the rural population is scattered around six hundred thousand villages (Ramaswamy and Namakumari,

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2002). The rural consumer suffers mainly from the following handicaps: illiteracy, poverty, untimely shopping (meaning they mostly shop at the time of marriages and other special occasions) etc. (Sharma and Katewa, 1997). The distribution channels in villages are lengthy involving more intermediaries and consequently higher consumer prices (Reddy, 1997). Rural demand has been observed as more cyclic compared to urban one. The predominance of agriculture in the income pattern and influence of marriages and festivals are the main reasons (Dey and Adhikari, 1998).

The story of the car is one of the most important chapters in the history of transport. Millions of people use their cars to help them earn a living or to travel for pleasure. The government of India introduced radical changes in its economic policies in 1991. In May 1993, the passenger car industry was delicensed and majority foreign equity participation was allowed.

Automobile sales in India have been growing at a fast rate due to easier availability of loans and launch of several new models instead of the fact that most auto makers raised prices thrice in 2010 to offset rise in taxes and input costs. In today's scenario, people in rural and semi urban areas are trying to elevate their life style and people in metropolitan cities are completely disappointed with the public transport system. This has led to the increased sales of passenger car segment in the domestic market (Kaushik and Kaushik, 2008).

## **REVIEW OF LITERATURE**

Following studies have been reviewed in order get insights into the pre-purchase search strategies used by car buyers.

Punj and Staelin (1983) postulated a descriptive model of information search and test the hypothesized relationships using survey data. Chi square test and regression analysis was used to analyze the data. The results showed that there are 2 unique components of prior knowledge. First consisted of knowledge of specific attributes associated with car models available for purchase and second were knowledge structures about cars or purchase decisions in general. The former causes less external search than the latter.

Narang (2001) made an attempt to identify the various characteristics of the rural markets in U.P. the objective of the study was to know the buying behavior of rural customers%. Results also revealed that rural purchase varied from product to product

and nominal amount of purchase is made from hawkers. It was recommended that infrastructure should be developed, more use of cooperative societies, utilization of multipurpose distribution centers etc. should be used to cater rural area to full extent.

Morton et al. (2002) analyzed the relation between car prices and demographics and also studied the role of internet in pricing of new cars. Results suggested that high income and high education indicated lower elasticity of demand as highly educated personnel were more effective negotiators. It was observed that women paid more for cars than men.

Rani (2008) studied the passenger car industry in India. Trends in car industry had been studied prior to liberalization and post liberalization. She pointed out that broad branding policy which gave new licenses to broad groups of automotive products started in 1985. After liberalization, the passenger car industry in the nineties was characterized by an increase in the number of brands available in the market which caused brands to compete on the basis of product features.

Goyal and Aggarwal (2008) attempted to find the relative importance of various factors that attract the customers while selecting a particular car in its segment. The study revealed that in case of purchase of luxury cars, the factors like horse power, model, luggage capacity, accessories and loan facility emerged as most significant factors, in case of medium cars, after sales service, availability of spare parts, model, shape and engine capacity were important and in case of small cars, the factors like accessories, engine capacity, after sales service and price were main considerations.

Lee and Cho (2009) tried to forecast demand for diesel passenger cars by considering consumer preference and government in South Korea. . The results implied that the consumers would prefer to purchase diesel passenger cars rather than gasoline cars because of the relative advantage in the operation cost. It was recommended that if car producers improve on the weak points of diesel cars such as comfort, noise, vibration levels etc, the diesel passenger cars would enjoy a substantial competitive edge over gasoline type cars.

Satish and Bhardhwaj (2010) carried out research on information search behavior among new car buyers. The data was collected from two Indian metros, Bangalore and Chennai. The data was analyzed with the help of factor analysis and variable so taken were related with attributes of cars. Four factors were extracted styling and comfort, value for money, safety and reliability and miscellaneous etc. the groups had been

distinguished using cluster analysis which was applied on search activity variables and personality variables. Four clusters so formed were named as broad moderate searchers, intense heavy searcher, low broad searcher and low searchers.

Peter's et.al (2011) identified psychological factors that are effective in measuring change in behaviour and helps in promoting fuel efficient cars. Model was proposed which integrated psychological variables that explained the purchase of fuel efficient vehicles by private consumers. The data was collected from 302 Swiss respondents whose household have bought a new car since 2002. Structured equation modeling was used to confirm the factors. It was concluded that problem awareness, symbolic motives and response efficacy influence the respective behaviour indirectly via effecting the direct predictors. Results reflected the salience of the positively valued features of new technology and alternative fuels.

## **NEED AND OBJECTIVE OF THE STUDY**

A number of studies have been conducted on Pre-Purchase search behaviour towards cars covering urban segment (like Newman &Staelin (1972), Padmanabhan& Rao (1993), Goyal& Aggarwal (2008) etc.) but they have ignored the rural segment. Hence the thrust of this proposed study will be on a comparison between rural and urban consumers especially to understand the rural behaviour in a more comprehensive way.

India, being largely an agricultural and rural oriented economy,need for assessing the potential for rural business and studying buying behaviour in rural market is imperative. The rural market has become an important aspect of marketing in the Indian marketing environment today (Adesara, 2004). This analysis will be helpful for various car manufacturers and will help them to know about pre-purchase behaviour of rural segment. Accordingly they would be able to form different strategies for marketing their product and penetrating into the rural cadre. Hence, the main objective of the paper is to analyze and compare the Pre-Purchase search strategies adopted by urban and rural consumers before purchasing a car.

## **RESEARCH METHODOLOGY**

The present study is mainly based on primary data collected from 477 respondents (238 Rural and 239 Urban respondents) from Amritsar, Jalandhar and Ludhiana. The



responses were collected through a pretested, well structured questionnaire which was administered personally. The questionnaire was pretested by having discussions with the experts in this field like managers of Maruti, Hyundai, Tata etc. of Amritsar region and hence questionnaire was edited accordingly. Convenient and judgmental sampling method has been used keeping in view the socio economic characteristics. Rural blocks have been decided on convenient basis and further sample is decided on the basis of standard of living of people means sample so extracted belongs to people of higher standard of living with atleast one car already in their household. Following table shows the structure of sample from population.

**Table 1 Urban sample Composition**

S.No	Cities	Sample Size
1.	Amritsar	80
2.	Jalandhar	79
3.	Ludhiana	80

### Rural Sample Composition

**Table 2 Amritsar**

S.No	Blocks	Villages Covered	Sample Size
1.	Ajnala	Burj	16
2.	Amritsar 2	Balkalan	16
		Heir	17
3.	Baba Bakala	Jhamke	16
		BathuChak	15

**Table 3 Jalandhar**

S.No	Blocks	Villages Covered	Sample Size
1.	Nakodar	Qaimwala	17
		Boparai	16
2.	Phillaur	NawanPindNaicha	15
		Mandi	15
3.	Jalandhar 1	LuteraKhurd	16

**Table 4 Ludhiana**

S.No	Blocks	Villages Covered	Sample Size
1.	Samrala	Salana	15
		Seh-jo-Majra	16
2.	Khanna	BahuMajra	17
3.	Payal	Gurditpura	15
		Zirath	16

Five point scale has been used for the said purpose ranging from strongly agree to strongly disagree. To find out the pre purchase search strategies for cars, Factor Analysis was applied on set of 10 statements. After the extraction of factors, weighted average scores have been calculated to find the relative importance of these factors in different segments. The weights have been assigned according to the order of extraction of factors during factor analysis. The Independent Sample T-test has been applied on factors to find out their significance difference in both segments. The survey was conducted during the period of January 2012 to July 2013. Before the application of factor analysis, Reliability of scale has been verified with the help of Cronbach's Alpha which came out to be 0.782 which is good figure. (Hair 2011). All these techniques have been carried out with the help of SPSS 11.5.

**Factor Analysis-** Factor analysis is a set of techniques which, by analyzing correlations between variables, reduces their number into fewer factors which explains much of the original data, more economically (Nargundkar 2010). Explanatory factor analysis is used to identify the underlying constructs and investigate relationships among the key survey interval-scaled questions regarding pre-purchase search strategies. To test the suitability of data, reliability test has been conducted and value of Cronbach's alpha comes out to be .7820 which is significant. This significant value is derived without deleting any variable. So factor analysis is applied on 10 statements.

The following steps have been conducted to analyze the data:

1. The correlation matrix is computed and examined. It reveals that there are enough correlations to go ahead with factor analysis.
2. Kaiser-Meyer-Olkin Measure of Sampling Adequacy is computed which is found to be .809. It is indicated that the sample is good enough for sampling.
3. The overall significance of correlation matrices is tested with Bartlett Test of

Sphericity(approx chi square = 822.920 and significant at .000) provided as well as support for validity of the factor analysis of the data set.

**Table-5: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.809
Bartlett's Test of Sphericity	Approx. Chi-Square	822.920
	df	45
	Sig.	.000

**Table- 6: Rotated Component Matrix**

Variables	Factors			Communalities
	F1	F2	F3	
V1	-.022	.258	<b>.718</b>	.582
V2	.010	<b>.740</b>	.053	.551
V3	.030	.424	<b>.572</b>	.508
V4	<b>.759</b>	-.043	.050	.581
V5	<b>.758</b>	.041	.225	.628
V6	.335	-.165	<b>.746</b>	.697
V7	<b>.651</b>	.310	-.054	.524
V8	<b>.516</b>	.356	.094	.401
V9	.302	<b>.648</b>	.193	.549
V10	.413	<b>.415</b>	.272	.416
Eigen Values	3.175	1.259	1.002	
Percentage of Variance	22.174	16.404	15.784	

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

\*Bold values represents highest loadings.

Hence all the assumptions indicated the appropriateness of the data to proceed for factor analysis. Principal component analysis was employed for extracting the factors based on

latent root criterion (i.e. Eigen Value > 1). An Eigen value of 1.00 is the most common used criterion for deciding among the factors (Bryant and Yarnold, 1998). Three factors have been extracted that are explaining 54.362% of variance. The percentages of variance explained by three factors are 22.174%, 16.404% and 15.784% respectively

### Criteria for the Significance of Factor Loadings

In interpreting factors, a decision must be made regarding which factor loadings are worth considering. A factor loading represents the correlation between original variables and its factors. The criteria for factor loadings are:

0.50 and higher (ignoring signs) – very significant

0.40 and higher (ignoring signs) - important

0.30 and higher (ignoring signs) - significant (Hair et. al 2011).

The results are obtained after the Varimax rotation and factor loading of 0.40 or higher (ignoring signs) has been considered significant for the present objective. After a factor solution has been obtained, in which all variables have a significant loading on a factor, then an attempt to assign some meaning to the pattern of factor loadings. Variables with higher loadings are considered more important and have greater influence on the name or label selected to represent a factor. All the underlying variables has been examined for a particular factor and placed greater emphasis on those variables with higher loadings to assign a name to a factor that accurately reflected the variable loading on that factor. The name or label is assigned by the factor analyst and not the computer program (Hair et.al 2011). All the three factors have been assigned suitable names summarized in Table-3.

**Table-7 Factor Names and Loadings**

Factor number	Name of dimension	Statements	Factor loadings
F1	Out of Store Activity	I spent lot of time in Reading Books and Auto Magazines	.759
		I spent lot of time in Reading about different Car Ratings	.758
		I spent lot of time in Looking at Automobile Shows on Different Channels	.651
		I spent lot of time in Visiting Different Websites for Information	.516

<b>F2</b>	<b>Others' Involvement</b>	I spent lot of time in Looking at Advertisements of Cars	.740
		I spent lot of time in Consulting Opinion Leaders	.648
		I spent lot of time in Inquiring about Cars from Different Experts	.415
<b>F3</b>	<b>Dealers' Visit</b>	I spent lot of time in Talking to Sales Persons	.718
		I spent lot of time in Test Driving Cars	.746
		I spent lot of time in Walking around Dealer's Showroom	.572

**Factor 1 –Out of Store Activity**

It is the most significant factor which explains 22.174% of the variance. The most important dimension in this factor is “I spent a lot of time in reading books and magazines” with maximum factor loading of 0.759. Three other statements that fall in factor 1 are “I spent lot of time in Reading about different Car Ratings” (0.758), “I spent lot of time in Looking at Automobile Shows on Different Channels” (0.651) and “I spent lot of time in Visiting Different Websites for Information” (0.516). All these statements clearly show that customers believe in out of store search the most as they may be thinking that people from Inside Company may tend to fool the customer. Customer from both rural and urban area tries to collect information from other mediums rather than company's offices or employees.

**Factor 2- Others' Involvement**

This is the second most important factor that explains 16.404% of the variance. The important dimensions in this factor are “I spent a lot of time in looking at advertisements of cars” (0.740), “I spent a lot of time in consulting opinion leaders” (0.648) and “I spent a lot of time in inquiring about cars from different experts” (0.415). All these statements clearly show that customers take the opinion of others in taking the decision regarding purchase of car. Advertisement is the most important medium in deciding for purchase of car in both urban and rural area.

**Factor 3- Dealers' Visit**

This factor accounts for 15.784% of the variance. The important factors in this factor are

“I spent a lot of time in talking to sales persons” (0.718), “I spent a lot of time in test driving cars” (0.746) and “I spent a lot of time in walking around dealer's showroom” (0.572). Both urban and their rural counterparts frequently visit different dealers to get more and more information about cars. Dealers try to satisfy them by providing them with test drives of different cars.

### Relative Importance of Factors in Urban and Rural Areas

In the above analysis, we came out with the three main factors that reflect pre-purchase behaviour in both urban and rural areas. To find out the relative importance of these factors, we applied weighted average method whereby we find mean scores of the variables in particular factor individually of urban and rural customers. The following table shows the above said problem.

**Table-8 Weighted Average Scores**

Factors	Variables	Mean Score (Urban Region)	Weighted Average Score (Urban)	Mean Score (Rural Region)	Weighted Average Score (Rural)
Out of Store Activity	Reading Books and Auto Magazines	3.6862	3.7751	.4958	3.5021
	Reading about different Car Ratings	3.7364		3.5462	
	Looking at Automobile Shows on Different Channels	3.5732		3.3992	
	Visiting Different Websites for Information	3.7238		3.4958	
Others Involvement	Looking at Advertisements of Cars	4.0335	3.8438	3.7773	3.4509
	Consulting Opinion Leaders	3.5439		3.1050	
	Inquiring about Cars from Different Experts	3.9540		3.4706	
Dealers' Visits	Talking to Sales Persons	3.8400	3.7946	3.5714	3.6414
	Walking around Dealer's Showroom	3.5983		3.4790	
	Test Driving Cars	3.9456		3.8739	

Source- calculated by author.

The table-8 shows that factor “Out of store Activity” is more important in urban area with weighted average score of 3.7751 as compared to rural one with score of 3.5021. The second factor “Others Involvement” is again more important in urban area with weighted average score of 3.8438 and weighted average score of rural area is 3.4509.

The third factor “Dealers' Visits” is again important in urban area with weighted average score of 3.7846 as compared to 3.6414 in rural area. In short, we can say that all these factors are more important in urban area as compared to rural one.

**Testing Significant Difference in Urban and Rural Segment**

The main purpose of our study is to compare the consumer behaviour of urban and their rural counterparts in context of pre-purchase behavior towards cars. In the above pages, The important factors have been determined to explore pre-purchase behaviour and their importance in both urban and rural area is found out with the help of weighted average scores. Now, in order to know the significance difference in these factors in urban and rural areas, independent sample T-Test on factor scores have been applied.

Null Hypothesis

**H<sub>01</sub>** – There is no significant difference in rural and urban customers in relation with “Out of Store Search” factor.

**H<sub>02</sub>**- There is no significant difference in urban and rural customers in relation with “Others' Involvement” factor.

**H<sub>03</sub>**- There is no significant difference in urban and rural customers in relation with “Dealers' Visits”.

**Table-9 T-Test on Pre-Purchase Factors**

Variables	Urban Group		Rural Group		f-value	Significance
	Mean	Standard Deviation	Mean	Standard Deviation		
Factor 1	.949	.937	-.953	1.052	4.348	.038*
Factor 2	.1968	.896	-.19768	1.059	19.276	.000*
Factor 3	.0559	1.041	-.056	.955	1.498	.222

\*represents significant values at 5% significance values.

The table-9 shows that factor1 and factor 2 are significant at 5% level of significance and factor 3 is insignificant. So H<sub>01</sub> and H<sub>02</sub> are rejected where as H<sub>03</sub> is accepted. It can be said that there is a significant difference in urban and rural customers with regard to out of

store Activity and other's involvement where as both urban and rural counterparts are similar in their opinion regarding dealer's visits.

## **DISCUSSION, CONCLUSION AND IMPLICATIONS FOR MARKETERS**

Present research work has been carried out to identify the pre-purchase search strategies followed by rural and urban consumers of cars. While it now seems clear that systematic search strategies are common among consumers and identifiable. The amount of search activity, a consumer actually engages in is a function of numerous factors. Newmann (1977), Punj & Staelin (1984) and Satish & Bhardhwaj (2010) have suggested different variables that are related to amount of external search. The basic factors that make up the search pattern are “Out of Store Activity”, “Other's Involvement” and “Dealer's Visits”. These factor names corroborate the study of Punj & Staelin (1984). So our results are in consensus with the results of previous studies. The results of weighted average scores clearly shows that all the factors are more important in urban area as compared to rural one. The Independent Sample T-test depicts that there is a significant difference in the search activity regarding “Out of Store Activity” and “Other's Involvement” and there is no difference in urban and rural respondents' opinion with respect to “Dealer's Visit”. It may be due to the fact that people in Punjab usually rely on others to make decisions. Rural people are mostly influenced by friends, relatives, opinion leaders like Sarpanchs etc. where as urban people get influenced by automobile shows, exhibitions etc. So they both give less weightage to “Dealer Visits”.

This study has various implications for the marketers. Firstly marketers come to know about the search pattern followed by rural and urban segment. “Out of search activity” is the most important factor in both segments. Marketers have to focus on advertisements in books and magazines, automobile shows, websites etc. in order to attract both segments of market.

Secondly, it has been found that people are least influenced by dealers. Companies should spend fewer resources on training of sales persons; test drives etc. and should focus their mind on other factors. Thirdly, study showed that both segments are different as far as the first two factors are concerned. So marketers have to come out with latest and different strategies to attract and penetrate into both segments. At last, it can be concluded that, it will be easier for an organization to design their communication strategies in specific ways for both segments after going through these results.



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## REVISITING THE ARBITRAGE PRICING THEORY (APT) IN THE NIGERIAN STOCK MARKET: A STRUCTURAL VAR APPROACH

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*The focus of this study is to assess the APT in the Nigerian environment using Structural VAR approach. The nature of this study necessitates the use of a time-series research design and an extensive reliance on secondary data. The data which include selected macroeconomic variables were sourced from the Central Bank of Nigeria (CBN) statistical bulletins, for the period 1980-2012. The method of data analysis utilized in the study involves several econometric applications often used in most contemporary economic time-series studies. First, the unit root test is applied to examine the stationarity condition of the variables in a time-series analysis. Next, we conducted the VAR estimation, while the impulse response and variance decomposition followed. The results obtained in the empirical analysis suggest certain policy direction issues. First, Money supply and interest rate shocks are not unstable in their effects on stock prices and hence cannot cause destabilisation in the stock market. Second, the all share price index does not also react immediately to government expenditure shocks. Finally, money supply and interest rates shocks tend to have a stronger effect on stock prices than government expenditure shocks.*

**Key words:** Arbitrage Pricing Theory, Macroeconomic Variables, SVAR and Nigerian Stock Market

### INTRODUCTION

An important subject in capital market-based research has been the behaviour of stock returns especially the forces that influence the stock returns. Stock returns and indeed asset prices in general are commonly believed to respond to information about economic fundamentals. There are reasons to suspect that individual stock prices are influenced by a wide variety of unanticipated events and that some events have a more pervasive effect on asset prices than do others. (Chen et al., 1986). Thus there has been some level of curiosity about what could explain considerably the pattern of stock market returns.

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Retrospectively, the one-factor capital asset pricing models (CAPM) is seen in certain quarters as the dominant asset pricing model. However, the single factor assumption of the CAPM is often cited to be its underlying weakness. The Arbitrage pricing theory (APT) model as formulated by Ross (1976) rests on the assumption that stock price is influenced by limited and non-correlated common factors and by a specific factor totally independent of the other factors. According to Morel (2001), by using the arbitrage reasoning, it can be shown that the risk associated with holding a particular security comes from two sources. The first source of risk is the macroeconomic factors that affect all securities. The whole asset market is influenced by these factors and cannot be diversified away. The second source of risk is the idiosyncratic element. This element is unique to each security and according to the APT, in a broadly diversified portfolio, it can be diversified away. The APT comes from an entirely different set of assumptions as it is not primarily concerned about the efficiency of portfolios. Instead, it starts by establishing a line of causality between each equity's return and the prevailing and pervasive macroeconomic influences as well as partly on random disturbances. Azeez and Yonezawa (2003) are of the opinion that the primary advantages of using macroeconomic factors is that firstly, the factors and their APT prices in principle can be given economic interpretations, and secondly rather than only using asset-prices to explain asset-prices, observed macroeconomic factors introduce additional information, linking asset-price behaviour to macroeconomic events. However, the research findings with regards to the suitability of the APT in explaining stock returns have indicated conflicting results across countries.

Specifically, developing economies have not provided adequate research findings. Furthermore there are also divergences with regards to which of the macroeconomic variables exert significant influence on stock returns (Humpe and Macmillan 2007; Nishat and Shaheen 2004; Maghayereh 2002; Al-Sharkas 2004). Thus this study addresses the need and thus fills the void of empirical evidence on the suitability of the APT in developing economies. There are several reasons why the Nigerian stock market is a good ground to examine the impact of the APT. Firstly, the Nigerian stock market provide a great possibility to test existing asset pricing models and pricing anomalies in special conditions of evolving markets. Second, in the light of evolving synergies between equity markets due to enhanced capital movements, it is interesting to test the extent macroeconomic fundamentals can be used as a basis for portfolio investments in the market. A related question in this respect is whether investors in this market react to news or unexpected changes in macro-economic conditions. The study adopts the

Structural VAR approach as it has been credited as the best way to discover what dynamic relations exist between multivariate series (Dungey & Pagan, 2008). The study hypothesizes that the APT macro-economic variables exerts considerable influence on stock price returns in the Nigerian Capital market.

## LITERATURE REVIEW

Javed and Akhtar (2012) investigated the risk-return relationship between money supply, interest rate and term structure with stock returns of fifty (50) firms listed on the Karachi Stock Exchange in Pakistan for the period July, 1998 to December, 2008. The study which employed the Generalized autoregressive conditional Heteroscedasticity (GARCH) model demonstrates, among others, that money supply positively affects stock returns. The findings also show that the sensitivity co-efficient of term structure of interest rate is negative implying that term structure adversely affects stock returns.

Dewan (2012) in his study of econometric analysis in Bangladesh, investigated the effect of monetary policy variables on its stock market using monthly data from January 2006 to July 2012. The variables used in the study are DSE index, money supply, repo rate, inflation rate, 3 month treasury bill using econometric analysis such as co-integration, error correction model and the granger causality. He found that, money supply, inflation and treasury bill rate have a positive impact while repo rate has a negative impact on the market index.

Ardagna (2009) reports that adjustments based on expenditure reduction are related with increases in stock market prices. Darrat (1990) in his examination of the effect of fiscal policies on shares in Canada concludes that budget deficits determine share returns but did not ascertain whether it is positive, negative or ambiguous.

The empirical findings from literature have not led to any consensus as to what factors adequate impact on stock price movements. In addition, comparisons on the dynamics of macroeconomic influences in order to draw inferences on the relative adequacy of the APT variables appear insufficient.

## METHODOLOGY

The nature of this study necessitates the use of a time-series research design and an extensive reliance on secondary data. The data which include selected macroeconomic

variables were sourced from the Central Bank of Nigeria (CBN) statistical bulletins, for the period 1980-2012. The method of data analysis utilized in the study involves several econometric applications often used in most contemporary economic time-series studies. First, the unit root test is applied to examine the stationarity condition of the variables in a time-series analysis. In this study we adopt the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) statistics to test for stationarity of the data. Next, we conduct the VAR estimation and then the impulse response and variance decomposition follows.

**Model Specification**

Since the early eighties, VAR models have become the standard tool to analyse macroeconomic policies and are found to be more successful in predicting economic relationships than the complex structural macro econometric models (Bahovec & Erjavec, 2009). The Vector Autoregressive Model can be expressed as,

$$A_0 y_t = a_0 + \sum_{i=1}^p A_i y_{t-i} + e_t \dots\dots\dots(1)$$

Accordingly the baseline VAR model with p lags VAR(P) is specified in its reduced form as:

$$Y_t = a_0 + a_1(t) + A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + e_t \dots\dots\dots(2)$$

where  $a_0$  is the  $(k \times 1)$  vector of constants;  $a_1(t)$  is a  $(k \times 1)$  vector of linear time trend;  $t=1, \dots, T$ ;  $A_i$  are  $(k \times k)$  coefficient matrices,  $K$  being the number of endogenous variables in the system and  $Y_t = (MS, INT, \frac{GEXP}{GDP}, e)$  is the vector of endogenous variables. The  $K \times 1$  vector  $e_t = (e_t^{asindex}, e_t^{ints}, e_t^{gexp}, )$  consists of reduced form residuals ordered with their corresponding observed endogenous variables in vector  $Y_t$ . Furthermore, each residual is a mean zero white noise process that is serially uncorrelated, i.e.,  $e_t \sim N(0, \Sigma)$ .

In order to get the reduced form of our structural model (2) we multiply both sides with  $A_0^{-1}$  such as that:

$$y_t = a_0 + \sum_{i=1}^p B_i y_{t-i} + e_t \dots\dots\dots(3)$$

where,  $\mathbf{a}_0 = \mathbf{A}_0^{-1}\mathbf{c}_0$ ,  $\mathbf{B}_t = \mathbf{A}_0^{-1}\mathbf{A}_t$ , and  $\mathbf{e}_t = \mathbf{A}_0^{-1}\boldsymbol{\varepsilon}_t$ , i.e.  $\boldsymbol{\varepsilon}_t = \mathbf{A}_0\mathbf{e}_t$ . The reduced form errors  $\mathbf{e}_t$  are linear combinations of the structural errors  $\boldsymbol{\varepsilon}_t$ , with a covariance matrix of the form  $E[\mathbf{e}_t\mathbf{e}_t'] = \mathbf{A}_0^{-1}\mathbf{D}\mathbf{A}_0^{-1}$ .

The structural disturbances can be derived by imposing suitable restrictions on  $\mathbf{A}_0$ . The short-run restrictions that are applied in this model as the following:

$$\begin{bmatrix} \varepsilon_t^{gexp} \\ \varepsilon_t^{ms} \\ \varepsilon_t^{int} \\ \varepsilon_t^{asindex} \end{bmatrix} = \begin{bmatrix} \alpha_{11} & 0 & 0 & 0 & 0 \\ \alpha_{21} & \alpha_{22} & 0 & 0 & 0 \\ \alpha_{31} & \alpha_{32} & \alpha_{33} & 0 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & \alpha_{44} & \alpha_{44} \end{bmatrix} \times \begin{bmatrix} e_t^{gexp} \\ e_t^{ms} \\ e_t^{int} \\ e_t^{asindex} \end{bmatrix}$$

Where;

$(\varepsilon_t^{asindex}, \varepsilon_t^{gexp}, \varepsilon_t^{ms}, \varepsilon_t^{int})$  denote the shocks in All share index used as proxy for stock market performance, Government Expenditure-GDP ratio, money supply and interest rate respectively. Furthermore,  $(e_t^{asindex}, e_t^{ms}, e_t^{int}, e_t^{gexp})$  consists of reduced form residuals ordered with their corresponding observed endogenous variables in vector  $Y_t$ .

Thus, in the same spirit with Bjornland and Leitemo (2009), the restrictions in our model can be explained, as follows: stock market performance measured by the All share index react contemporaneously to money supply and Government expenditures shocks (Kim and Roubini, 2000; Afonso and Sousa, 2011). Interest rates are influenced contemporaneously by Government expenditure shock and the money supply shock (Sims and Zha, 2006; Kim and Roubini, 2000; Elbourne, 2008). Finally, capital market performance is influenced contemporaneously by all variables (Bjornland, 2008). Our restrictions and identification of the VAR model is based on the recursive approach using Cholesky decomposition that decomposes a given positive definite matrix. The recursive approach implies causal ordering. Altering the order implicitly changes the relationship structure of innovations. Cholesky decomposition requires the variables to be ordered in a particular fashion, where variables placed higher in the ordering have contemporaneous impact on the variables which are lower in the ordering, but the variables lower in the ordering do not have contemporaneous impact on the variables those are higher in the ordering. Variance decompositions (VDCs) and impulse response functions (IRFs) derived from vector

autoregression (VARs) approach are also used.

## PRESENTATION AND ANALYSIS OF RESULT

**Table 4.1: Correlation Result**

	ASINDEX	INT	GEXP	MS
ASINDEX	1			
INT	0.420722	1		
GEXP	0.295218	0.331172	1	
MS	0.921798	0.19058	0.283733	1

Source: Researchers Compilation (2014)

From table 4.1 above, the correlation coefficients of the variables are examined. However of particular interest to the study is the correlation of the variables with the all share price index. As observed, a positive correlation exists between All Share index and interest rate ( $r=0.420$ ). A positive correlation is observed between All Share index and Government expenditure-GDP ratio ( $r=0.012$ ) and finally money supply and appears to have the strongest correlation ( $r=0.922$ ) with All share index. The correlations amongst the explanatory variable are quite within limits and do not raise serious suspicions about multicollinearity. Nevertheless, the variance inflation factor (VIF) test is conducted to ascertain the multicollinerity status of the variables.

**Table 4.2 Variance Inflation Factor Test**

Variable	Coefficeint Variance	Centered VIF
INT	753.5774	1.229958
GEXP	387.3119	1.199542
MS	4.69E-09	1.860185

Source: Researchers Compilation (2014)

Table 4.2 shows the result for the variance inflation factor (VIF) which indicates how much of the variance of a coefficient estimate of a regressor has been inflated due to collinearity with the other regressors. Basically, VIFs above 10 are seen as a cause of concern (Landau and Everitt, 2003). As observed, none of the variables have VIF's values exceeding 10 and hence none gave serious indication of multicollinearity.



**Unit root test**

Generally, unit root test involves the test of stationarity for the variables used in the regression analysis. The augmented Dicky Fuller (ADF) test is employed in order to analyse the unit roots.

**Table 4.3 Unit Root Test Results**

Unit root test at levels			
Variable	ADFTest Statistic	95% Critical ADF Value	Remark
ASINDEX	-0.6238	-2.96	Non-stationary
MS	-2.106	-2.96	“
INTR	-3.092	-2.96	Stationary
GEXP/GDP	-1.728	-2.96	Non-stationary
Unit root test at 1 <sup>st</sup> difference			
Variable	ADF-Test Statistic	95% Critical ADF Value	Remark
ASINDEX	-4.419	-2.96	Stationary
MS	-20.408	-2.96	“
INTR	-5.918	-2.96	“
GEXP/GDP	-6.664	-2.96	“

Source: Source: Researchers' Compilation (2014)

Table 4.3 presents the results of the ADF test in levels without taking into consideration the trend of the variables. The reason for this is that an explicit test of the trending pattern of the time series has not been carried out. The result indicates that all of the variables at levels, have ADF values that are less than the 95% critical ADF value of 2.96 except for INTR. Moving forward, we take the first differences of the respective variables and perform the unit root test on each of the resultant time series. The result of the unit root test on these variables in first differencing shows that the ADF values in absolute terms is greater than the 95% critical ADF values. With these result, these variables are adjudged to be stationary.

**4.2. Lag length Selection**

To obtain a reasonable conclusion, the selection of lag length is a key determinant factor to establish the appropriate VAR model. According to the criteria selection output in Table 4.4, different lag lengths are indicated for each county. A lag length of 4 is used as

the optimal lag length since it has the highest value of likelihood ratio (LR) LR and lowest information criteria (IC)

**Table 4.4: Lag Length Selection**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-904.835	NA	1.15E+22	64.98824	65.22613	65.06097
1	-776.31	201.968	7.33E+18	57.59359	59.02095	58.02995
2	-760.112	19.66982	1.66E+19	58.22226	60.83909	59.02225
3	-714.543	39.05914	6.68E+18	56.75304	60.55934	57.91667
4	-602.941	55.80060*	5.85e+16*	50.56724*	55.56301*	52.09450*

Source: Researchers' Compilation (2014)

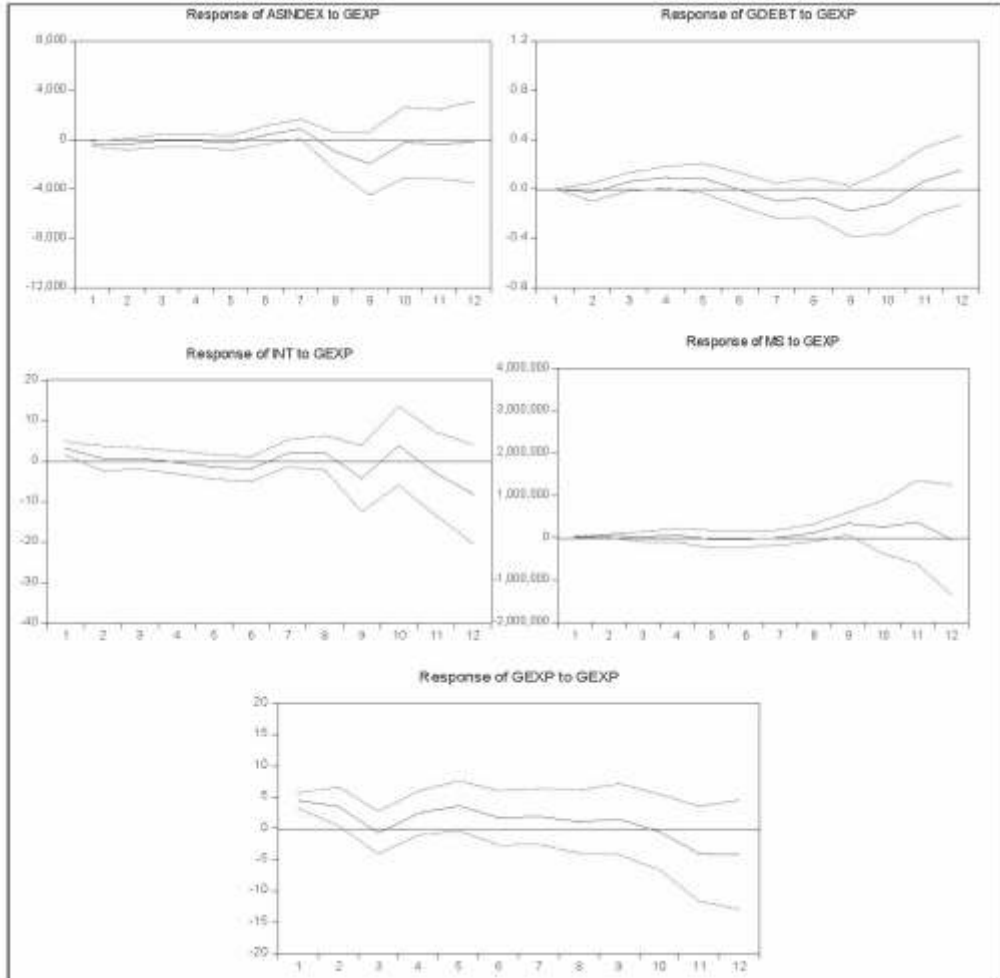
\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level) FPE: Final prediction error AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

## 4.2 Impulse Response Functions

The impulse responses show the path of all share price index when there are innovations in the macro-economic policy variables. The figures below show four panels of impulse response graphs indicating how innovations in policy variables affect stock prices over a period of 12 quarters. The analysis is presented below;

**Table 4.5: Responses of One standard Deviation Shocks to Government Expenditure**

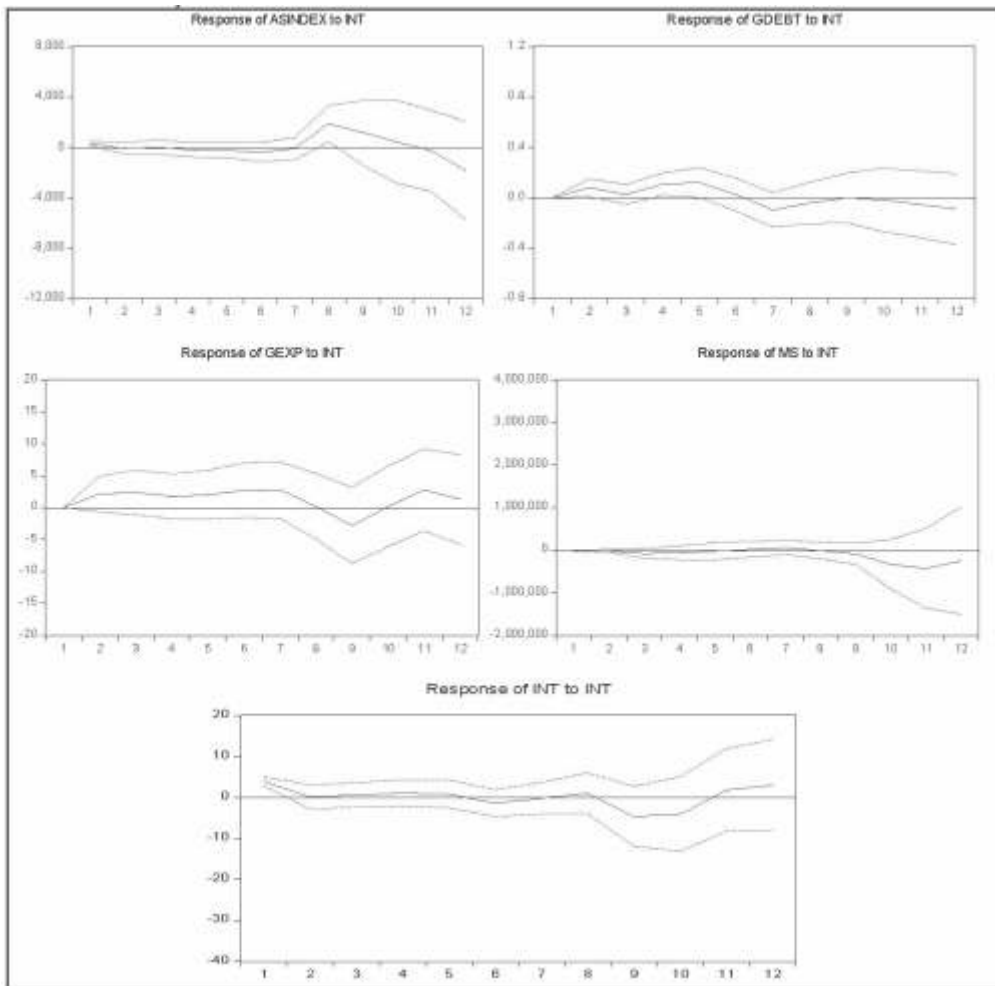


Source: Researchers' Compilation (2014)

Table 4.5 displays the responses of all variables in the VAR to innovations in government expenditure. As observed, All share index used appears to maintain its stability beginning from the first quarter and even up to the sixth quarter. Afterwards, it fluctuates slightly though non-negatively until the 11<sup>th</sup> quarter where it begins to slide towards disequilibrium. We observe a delayed response of market capitalization to shocks in government expenditure and the tendency for asymptotic disequilibrium. With respect to interest rates, the fluctuations observed resulting from government expenditure shocks

seem to be quite benign up till the sixth quarter. Indicating that interest rates do not react immediately to government expenditure shocks but with a significant lag. The sensitivity of interest rate appears to be slightly heightened from the seventh quarter leading the path eventually towards disequilibrium. Money supply in appears to be stable in response to government expenditure shocks from the first and down to the eighth quarter. Finally, the persistence of government expenditure which shows the pattern of development the variable within a protracted period caused by a shock to itself is fairly stable.

**Table 4.6: Responses of One Standard Deviation Shocks to Interest Rate**

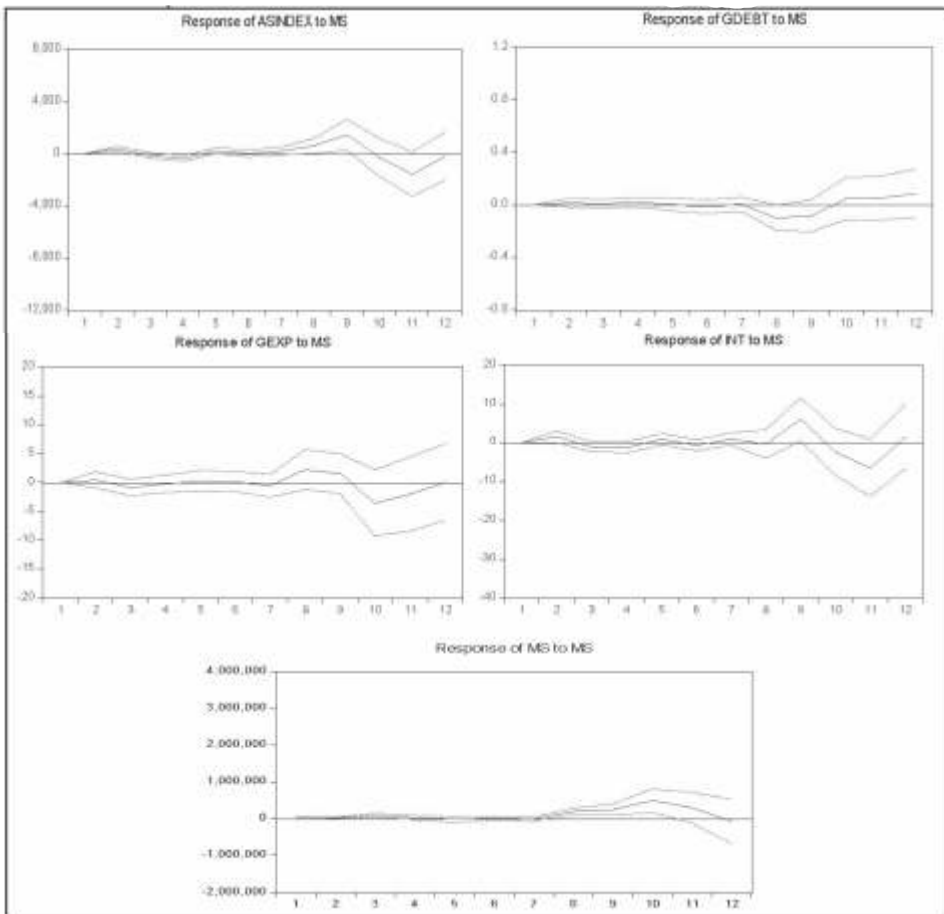


Source: Researchers' Compilation (2014)

Table 4.6 displays the responses of all variables in the VAR to innovations in interest rate. As observed, innovations in interest rates leave the time path of all-share index

largely stable beginning from the first quarter up to the eight quarter. Afterwards, it slides downwards and then rises again at the eleventh quarter with fluctuations that appear to be quite benign. Clearly, there is a delay in the response of share price index to interest rate shocks and when it does react, the response do not appear to be very strong. Government expenditure shows a sustained rise from the on-set to interest rate shocks until the eight quarter when it tends downwards and rises immediately. Despite this, the time path remains largely stable. We also consider the responses of money supply to shocks Interest rates. The time path of money supply appears very much stable until the ninth quarter where it exhibits some response fluctuating slightly (negatively). Finally, the persistence of interest rate shocks which shows the pattern of development of the variable within a protracted period caused by a shock to itself is fairly stable.

**Table 4.7: Responses Of One Standard Deviation Shocks to Money Supply**



Source: Researchers' Compilation (2014)

Table 4.7 displays the responses of all variables in the VAR to innovations in money supply. As observed, all share index appears to maintain its stability beginning from the first quarter up to the seventh quarter. Afterwards, it oscillates slightly about its natural path eventually maintain asymptotic stability over the horizon. This suggest that share prices index does not react immediately to Money supply shocks but with a significant lag and response is not strong such as to be able to distort the time path from equilibrium over time. We also consider the responses of government expenditure to shocks in money supply. The response is quite steady with minor fluctuations which do not seem to pose significant threats to the stability of the time path and this holds over all quarters. With respect to interest rates, the time path observed resulting from money supply shocks seem to also be quite stable with minor fluctuations occurring up to the eight quarter and then more relatively intense fluctuations over the remaining period. Finally, the persistence of money supply which shows the pattern of development the variable within a protracted period caused by a shock to itself is fairly stable.

**Table 4.8: Variance Decomposition**

	Period	S.E.	$\sigma_{\text{asindex}_t}^2$	$\sigma_{\text{gexp}_t}^2$	$\sigma_{\text{int}_t}^2$	$\sigma_{\text{m1s}_t}^2$
VD OF ASINDEX	1	655.8994	23.25968	11.36562	25.93068	16.7428
	3	1055.065	20.78622	6.229071	10.60836	40.81664
	6	1646.891	24.6888	13.76935	12.6965	32.13057
	9	5552.718	14.83323	3.145434	17.21475	45.58629
	12	8068.812	27.60305	8.572107	13.63532	40.73479
VD OF GEXP	1	5.172475	0	0	0	0
	3	7.682558	0.130554	7.787968	29.1159	3.175474
	6	10.36046	3.506215	5.999737	24.78772	4.131745
	9	13.81448	8.212804	4.786093	29.21285	21.54789
	12	18.44922	18.3956	8.936052	22.07864	29.54775
VD OF INT	1	5.462768	0	3.323145	85.45983	0
	3	6.372917	6.976406	6.214788	71.43297	6.621391
	6	7.993298	9.916942	6.001342	57.83543	16.49757
	9	18.55384	12.39981	2.746393	25.43455	32.28826
	12	26.80052	26.22916	8.618362	17.74382	33.76245

VD OF MS	1	64122.6	0	11.11928	5.213372	82.87743
	3	326843	18.04398	2.163416	12.83831	56.34247
	6	473064.3	25.19171	6.322194	13.15851	43.17795
	9	1132468	20.1322	2.568321	23.2531	49.13273
	12	3033894	24.56275	6.898619	14.76027	42.8843

Source: Researchers' Compilation (2014)

In evaluating the variance decomposition result in table 4.8, we are particularly interested in the forecast error variance in the all share price index. The variance decomposition shows that in the first quarter 23.259 % of the forecast error variance in all share price index is explained by the shock in itself declining by 2.473% to explain 20.786% in the third quarter and rising by 3.90% to explain 24.688% of forecast error variance in the sixth quarter. It declines further in the ninth quarter and then eventually pushing up to 27.60% in the twelfth quarter. This confirms that all share price index shocks are highly dependent on other shocks in the economy. As shown in table 4.8 above, government expenditure shocks explain about 22.70% of the forecast errors of all share price index in one quarter and then declines by 1.142% to explain 21.559 % of the error variance in all share price index in the third quarter. From third quarter, it declines by 4.844% to explain 16.714% in the sixth quarter and 19.22% in ninth quarter and 9.455% in the twelfth quarter respectively. From the variance decomposition evaluation, we find that shocks in government expenditure exert some influence on forecast errors of all share price and this suggest that government expenditure may not be neutral in its effect on stock prices. Interest rate shocks explain about 25.93% of the forecast errors of all share price index in one quarter and then declines by 15.32% to explain 10.608 % of the error variance i in the third quarter. From third quarter, it rises by 2.088% to explain 12.6965% in the sixth quarter. In the ninth and twelfth quarter interest rate variable explains 17.214% and 13.635% % of the forecast errors of all share price index in respectively. Money supply shocks explains about 16.743% of the forecast errors of all share price index in the first quarter and then rises to 40.8166% in the third quarter. From third quarter, it declined by 8.68607% to explain 32.13057% in the sixth quarter. In the ninth and twelfth quarter money supply variable explains 45.586% and 40.735% % of the forecast errors of market capitalization respectively.

## CONCLUSION AND POLICY IMPLICATIONS

An attempt has been made in this paper to revisit the Arbitrage pricing theory in the Nigerian stock market using the Structural VAR approach. The results obtained in the

empirical analysis above are quite interesting and suggest certain policy direction issues. First, the result revealed that both money supply and interest rates impact on the all share price index. The very strong correlation between market capitalization and money supply suggests that the coordination of monetary policy will be important in stimulating stock market returns. Second, money supply and interest rate shocks are not unstable in their effects on stock market and hence cannot cause destabilisation in the stock market. This suggests that monetary policy moves may not have adverse effects on the market and the long-run stability of the market would not be threatened. Third, share price index does not react immediately to money supply shocks but with a significant lag. Although this is not the case for interest rate shocks. Fourthly, the all share price index does not also react immediately to government expenditure shocks. Finally, money supply and interest rates shocks tend to have a stronger effect on stock market performance than government expenditure shocks. This suggests that there is the need for effective fiscal policy coordination and increased efficiency of institutions that are expected to facilitate the fiscal policy execution.

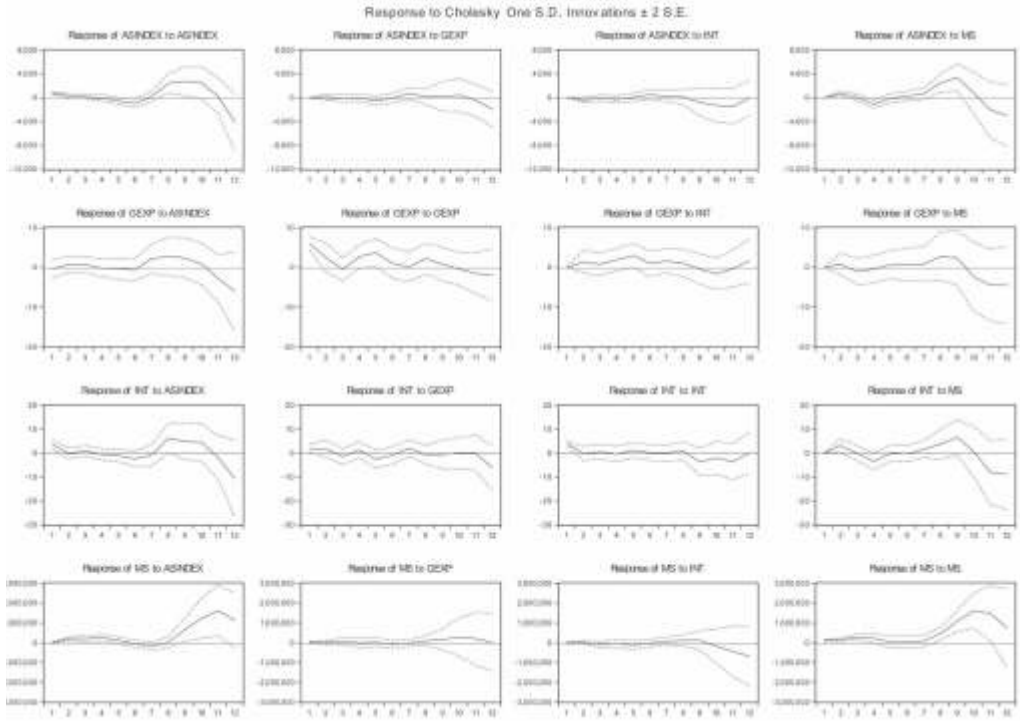
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ANNEXTURE

ANNEXTURE 1



ANNEXTURE 2

Variance Decomposition of ASINDEX:						
Period	S.E.	ASINDEX	GEXP	INT	MS	
1	775.3077	100.0000	0.000000	0.000000	0.000000	
2	1161.412	52.33701	0.984154	10.98740	35.69143	
3	1176.887	51.86667	2.134533	11.15605	34.84275	
4	1617.951	27.46429	1.137829	9.196229	62.20165	
5	1801.207	32.54573	9.110728	7.606793	50.73675	
6	2125.811	44.13391	6.727986	11.00605	38.13205	
7	2361.938	36.38355	14.24054	10.05810	39.31782	
8	4190.497	44.44668	4.671062	3.247736	47.63452	
9	6088.511	41.10372	2.298985	3.208178	53.38912	
10	6764.703	46.69598	2.287743	6.352561	44.66372	
11	7243.806	40.83415	2.406222	9.558070	47.20156	
12	9081.508	46.78659	6.238764	6.085830	40.88882	

## ANNEXTURE 3

Variance Decomposition of GEXP:

Period	S.E.	ASINDEX	GEXP	INT	MS
1	6.020794	0.440268	99.55973	0.000000	0.000000
2	6.730326	1.523054	92.85717	4.171191	1.448586
3	6.912979	2.481237	88.54461	5.276145	3.698003
4	7.689774	2.075644	84.19156	10.46205	3.270750
5	9.088469	1.624937	76.86824	18.65861	2.848216
6	9.243788	1.977984	75.64062	19.07917	3.302226
7	9.673033	6.949327	69.09513	20.27269	3.682853
8	10.71886	12.19671	60.56658	17.50245	9.734256
9	11.27323	15.49346	55.28029	15.98500	13.24124
10	11.66626	15.00857	51.71777	16.78333	16.49032
11	12.88105	16.89236	43.85602	13.81347	25.43814
12	15.13511	28.08437	33.37179	11.28142	27.26242

## ANNEXTURE 4

Variance Decomposition of INT:

Period	S.E.	ASINDEX	GEXP	INT	MS
1	5.926307	40.96848	11.02257	48.00895	0.000000
2	6.952320	29.83515	14.66675	35.00419	20.49392
3	7.180378	29.51990	17.85255	33.33710	19.29044
4	8.130771	23.48166	16.73417	26.26649	33.51768
5	8.684761	22.17028	23.70383	24.73121	29.39468
6	9.078841	27.40094	22.93062	22.66696	27.00147
7	9.500467	25.85663	25.82879	20.70289	27.61169
8	12.02541	43.22890	16.49488	13.44239	26.83382
9	15.00120	37.82486	10.73712	14.72171	36.71631
10	15.81811	42.19997	9.657085	14.97933	33.16362
11	18.21227	32.86585	7.286627	15.21133	44.63619
12	23.72778	39.69125	11.07337	8.961997	40.27338

## ANNEXTURE 4

Variance Decomposition of MS:

Period	S.E.	ASINDEX	GEXP	INT	MS
1	119766.2	0.531970	2.538797	0.433705	96.49553
2	276738.6	48.93992	0.585271	0.303287	50.17152
3	452109.1	37.26703	2.310836	4.121715	56.30042
4	563716.6	44.38354	1.534571	3.412378	50.66952
5	590598.7	44.16147	1.472369	7.974929	46.39123
6	600937.7	43.75508	3.274925	7.947976	45.02202
7	635957.2	46.45656	3.121373	8.611880	41.81018
8	805299.8	28.99226	3.363942	7.387973	60.25582
9	1505934.	27.17090	2.076367	2.667432	68.08530
10	2540402.	33.02604	1.909381	1.442053	63.62253
11	3387404.	41.27419	1.428671	2.538267	54.75888
12	3708637.	43.66209	1.192838	5.517324	49.62775

Cholesky Ordering: ASINDEX GEXP  
INT MS

## LIST OF ABBREVIATIONS

- ADF:** Augmented Dicky Fuller  
**AIC:** Akaike Information Criterion  
**APT:** Arbitrage Pricing Theory  
**CAMP:** Capital Asset Pricing Models  
**CBN:** Central Bank of Nigeria  
**DSE:** Dhaka Stock Exchange  
**FPE:** Final Prediction Error  
**HQ:** Hannan-Quinn  
**IC:** Information Criteria  
**IRF:** Impulse Response Function  
**LR:** Likelihood Ratio  
**SIC:** Schwarz Information Criterion,  
**SVAR:** Structural Vector Autoregression  
**VDC:** Variance Decomposition  
**VIF:** Variance Inflation Factor



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## PERFORMANCE EVALUATION OF LIFE INSURANCE COMPANIES IN INDIA: AN APPLICATION OF DEA MODEL

Sumninder Kaur Bawa<sup>1</sup> and Nidhi Bhagat<sup>2</sup>

*Last few years have seen insurance re-evaluating their operating models, modifying products to bring them in line with new regulations, increasing their focus on customer needs and being more efficient. The issue of efficiency is the key concern in the insurance sector. Efficiency measurement helps to identify the inefficient and efficient insurers in the market to improve competition, profitability and confidence of the policyholders and the way to improve the performance of the life insurers. For this reason, an attempt has been made to measure the performance efficiency of life insurance companies in India with the help of Data Envelopment Analysis. The efficiency of twelve life insurance companies in India has been measured during the period of 2008-09 to 2012-13. Variables taken for the study include equity capital and labor (Commission Expenses) as inputs and net premium as output.*

**Key words:** Data Envelopment Analysis, Efficiency, Life Insurance

### INTRODUCTION

Insurance is a risk transfer mechanism whereby the individuals or the business enterprise can shift some of the uncertainties of life on the shoulder of the other. All the people will desire to live a cleaner, healthier and comfortable life. A small error or lapse may cause many side effects and cause death or disability.

To meet this requirement different enterprises (especially insurance companies) produce and provide goods and services, make innovations and inventions, while assuming far greater risk. In India, insurers in general and LIC in particular act as a major financial intermediary and contribute to the development of savings and capital market. Life insurance is a long-term and capital intensive business with a long break-even period, about a decade or so. Most private players have accumulated losses, not due to

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inefficiency but due to the nature of this business. Over the past few years the Indian life insurance industry has undergone de-growth and market consolidation despite being one of the top 10 insurance markets in the world. India, given its demography, has always been an attractive market for global insurers who have always been keen to expand their business in the country. The FDI limit for insurance in India is among the lowest globally. China, Indonesia and Malaysia have an FDI limit of 50, 80 and 51 per cent respectively. Japan, South Korea, Vietnam, Hong Kong and Taiwan allow 100 per cent FDI. Insurance education helps a consumer to understand their needs and risks, ascertain availability of insurance for managing risks, appreciate their value of possessing an insurance product and to know about the do's & don'ts before and after purchase of an insurance policy (IRDA Annual Report 2012-13)<sup>i</sup>. IRDA, as insurance sector regulator, has been playing a pro-active role in promoting insurance education since its inception and has adopted multi-pronged approach to enhance consumer awareness on various tenets of insurance. IRDA's strategy of publicity and consumer education has been encompassing both in-house programmes and supporting/sponsoring external programmes and encouraging all stakeholders to promote insurance awareness among the public by stepping up its efforts for insurance education.

## REVIEW OF LITERATURE

**Aleng** (2013) measured the relative efficiency of 13 life insurance companies in Malaysia from 2007 to 2009. Study used SFA to panel data which includes variable like total profits of the company, net investment income, total liabilities and assets of the company, management expenses, annual premium, net claims paid by the company. The positive improvement show that the insurance industry has been in high demand among the people. According to the rank of efficiency included in the study will help people in selecting and evaluating life insurance companies that have good performance and also help management and administration of insurance firms involved in marketing and improves the weaknesses such as formulating business strategy to attract customers who can benefit the firm. **Barros & Obijaku** (2007) analyzed the technical efficiency of ten Nigerian insurance companies with aid of four DEA models DEA-CCR, DEA-BCC, Cross efficiency DEA model, super efficiency DEA model. The DEA-CCR and BCC model were strong in identifying efficient units but they could not discriminate between the inefficient units, so to overcome this deficiency cross efficiency DEA model was used. Insurance production was measured according to generalized Cobb-Douglas

production function. Outputs were net premium, settled claims, outstanding claims, investment income. Inputs were total capital, total operative costs, total number of employees, total investment. Results found that Nigerian companies were managed with pure technical efficiency and for technically inefficient insurance companies; there is room to upgrade their efficiency level by means of reference to the frontier of best practice. **Bikker and Leuvenstey** (2008) investigated efficiency and competitive behavior of the Dutch Life insurance market by using Translog Cost Function (TCF). To measure the competition, they have used four different empirical aggregate indicators i.e. average profit margins, scale economies, X-inefficiencies, and the boon indicator. The results proved that supplier power is limited due to large number of insurance firms and consumer power is limited due to opaque nature of many life insurance products. Secondly, competitive pressure in the insurance market has so far been insufficient to force insurance firms to exploit these existing scale economies. **Chen, Power and Qiu** (2009) evaluated the efficiency of life insurers operating in china and compared foreign firms with domestic firms. The basic idea of DEA is to construct a frontier that reflects optimal production. Output indicators used in the study were annuity; savings related life and health and invested assets. Inputs were equity capital, number of employees and agents, material and other related costs. Results concluded that foreign insurers tend to manifest greater efficiency than domestic insurers and therefore must increase their efficiency in Chinese market. Foreign insurers should focus on scale economy for future development. Controlling inputs, as opposed to outputs is more important for inefficient insurers. In short greater competition caused mainly by the entry of foreign insurers likely caused both increased and decreased in firm efficiency. **Nandi** (2014) evaluated relative efficiency of 13 life insurance companies with the help of DEA for the period of 2002-03 to 2011-12. Two basic DEA models namely CCR- for constant returns to scale and BCC for Variable returns to scale have been applied to estimate the relative efficiency. Results showed that life insurers carrying life business at an average technical efficiency of 82.6 %, pure technical efficiency 87.5 % and scale efficiency of 94.7%. Moreover they have found diverse trends of improvement direction and space over a period of time. **Rahman** (2013) analyzed the sources of efficiency and technical changes in both life and non-life Takaful companies in Bangladesh by using Non-Parametric approach of DEA together with Malmquist Index. Study isolate the contributions of technical change, efficiency change the pure and the scale changes to total factor productivity growth of different life and non life Takaful operators in Bangladesh. The data of 17 companies 3 Takaful life operators and 10 life insurers has been considered for efficiency analysis in this study. Inputs taken for the study was commission expenses and outputs were premium and net

investment income. The Total Factor Productivity of the takaful life insurance industry is mainly due to both efficiency and technical change where the main source of the efficiency change is pure efficiency rather than scale efficiency. So this work shows despite having potentiality, but due to inefficient operators life insurance companies cannot gain success in this country. **Saad and Idris** (2011) study focused on the performance of insurance industry in Malaysia and Brunei by making compassion on the efficiency of life insurance companies in the Malaysia and Brunei for the year 2000-2005 by using DEA. In DEA technical efficiency is measured by Malmquist index. The study utilized two inputs namely commission agents and management expenses and two outputs namely premium and net investment income. Findings indicated that the bigger the size of the company, the higher the profitability for the companies to be more efficient in utilizing their inputs to generate ore outputs. **Sabet and Fadavi** (2013) measured the performance of insurance firms which were active in Iran over the period of 2006-2010 with the help of two stage data envelopment analysis. The study measured the relative efficiencies over the period of 2006-2010. Firstly they have calculated the firm independently at two stages and then multiply this number together to get the overall efficiency. The average efficiency of insurance firms in all years was relatively low which means limited number of units dominated the market compared with other insurance firms. The results of the survey indicated that while there were four efficient firms most other firms were noticeably inefficient. This means that market was monopolized mostly by a limited number of insurance firms and competition was not fair enough to let other firms participated in economy more efficiently. **Sinha** (2007) author examined the performance of life insurance companies from the period of 2003 to 2006 by using radial data envelopment analysis. Also the study focused upon the sale of new life insurance policies, market share and market trend its growth. Efficiency has been checked by taking into account operating income and the net premium income of the observed life insurance companies as output factors and number of agents employed by the company and equity capital as inputs. Findings revealed that mean technical efficiency has improved in 2003-04 in relation to 2002-03. In 2004-05 it remained as the same level. In 2005 it started declining. The study proved an indication of the wide opportunities that the insurers have store for them. **Yang** (2006) assessed the impact of operating and business strategies on the Canadian life and health assurance industry. Two approaches have been used to obtain a different aspect of efficiency measures, this research proposed a new two stage DEA-model which integrate the production performance and investment performance and consider compromise between these two aspects for Canadian life and health insurance industry. Inputs were labour expenses, general operating expenses, capital, equity and



claims incurred and two outputs were premium underwritten and net income to evaluate the production performance. It can be concluded that BCC model identified technical efficiency of 76% and 52% on average for the production model and investment model respectively. **Borges et al** (2008) analyzed the technical efficiency of Greek life insurance companies from 1994 to 2003 with DEA models. Inputs include labor cost, non labor cost, equity capital and output factors were invested assets, and losses incurred, reinsurance reserves. The VRS methodology was preferred because author assumed that there was strong disposability of inputs and outputs was assumed, technical efficiency can be decomposed into two different components pure technical efficiency and scale efficiency. Thus, it was suggested that Greek life insurance companies reflect average management quality, when pure technical efficiency is concerned; therefore the life insurance sector was in great need of consolidation in order to increase the scale of operations. **Jeng and Lai** (2008) examined the impact of deregulation and Liberalization on the efficiency of the life insurance industry. Author compared the efficiency performance of old domestic firms to that of new firms in three stages pre D&L (before 1987) and foreign entry period (1988-1993) post D&L (1994-2004). Inputs used were home office labor, Agent labor, and business service and equity capital. Outputs include benefit payment. Both DEA and Malmquist index results show that the old domestic firms have been slightly impacted by the new competitors around 1992-1994. However existing firms cope with new challenges well. It became important to treat new firms as one group and also old domestic firms as another group when examining their efficiency differences. Results suggested that any new entrant into the market should acquire an old firm rather than establish a new one because it took longer for new firm to establish the distribution system and business connections in the new market.

## **DATABASE AND RESEARCH METHODOLOGY**

Performance measurement is one of the most important issues among the insurance firms and there are many studies focusing on measuring the efficiencies of insurance firms in this sector (Barros et al., 2010<sup>ii</sup>; Cummins and Xie, 2008<sup>iii</sup>). So in this study an attempt has been made to evaluate the efficiency of life insurance companies in India. The study covers the period of 5 years from 2008-09 to 2012-13. Data have been taken from annual reports of the respective life insurance companies, IRDA Annual Reports and Statistical year book of Insurance. The companies which are taken into consideration for the purpose of analysis are: Bajaj Allianz Life Insurance Company, Reliance Life Insurance Company, Aviva Life Insurance Company, Birla Sun Life

Insurance Company, HDFC Standard Life Insurance Company, ICICI Prudential Life Insurance Company, Max New York Life Insurance Company, Life Insurance Corporation of India, Met Life Insurance Company, ING Vysya Life Insurance Company, Om Kotak Life Insurance Company, SBI Life Insurance Company.

There are two kinds of methods to calculate productivity: a) Stochastic Frontier Analysis, which is parametric and b) DEA which is non-parametric. The two alternative approaches have different strength and weaknesses. The main advantage of DEA is that it does not require any information more than input-output quantities. The efficiency is measured relative to the highest observed performance rather than an average. However, a DEA based estimate is sensitive to measurement errors or otherwise in the data because DEA is deterministic and attributes all deviations from the frontier to inefficiencies. The strength of SFA is that it considers stochastic noise in data and also allows for the statistical testing of hypothesis concerning production structure and degree of inefficiency. Its main weaknesses are that it requires an explicit imposition of a particular parametric functional form representing the underlying technology and also an explicit distributional assumption for the inefficiency terms. The rationale for using two competing approaches is to countercheck whether results obtained by one can be confirmed by the other. Therefore, in this paper Data Envelopment Analysis technique has been used to evaluate the efficiency of life insurance companies in India.

Data Envelopment Analysis technique is a Linear Programming technique that measures the relationship of produced goods and services (outputs) to assign resources (inputs). DEA determines the efficiency scores as an optimization result. DEA models can be specified under the assumption of Constant Returns to Scale (CRS) and Variable Returns to Scale (VRS) and can be decomposed cost efficiency into single components – Technical, Pure Technical, and Scale efficiency. Technical efficiency relates to the productivity of inputs. The TE of a firm is comparative measure of how well it actually processes inputs to achieve its outputs, as compared to its maximum potential for doing so, as represented by its production possibility frontier (Barros and Mascarenhas, 2005<sup>iv</sup>). A measure of technical efficiency under the assumption of Constant Returns to scale is known as a measure overall technical efficiency (OTE). The OTE measure helps to determine inefficiency due to the input/output configuration as well as size of operations. In DEA, OTE measure has been decomposed into two mutually exclusive and non-additive components PTE and SE. This decomposition allows an insight into the sources of inefficiencies. The PTE measure is obtained by estimating the efficient frontier under the assumption of VRS. It is a measure of

Technical efficiency without scale efficiency and purely reflects the managerial performance to organize the inputs in the production process. Thus, PTE measure has been used as an index to capture managerial performance. The ratio of Overall Technical Efficiency over Pure Technical Efficiency proves Scale Efficiency measure. The measure of Scale Efficiency provides the ability of the management to choose the optimum size of resources i.e. to decide on the banks size or in other words, to choose the scale of production that will attain the expected production level. Inappropriate size of a firm (too large or too small) may sometimes be a cause of technical efficiency. This is referred as scale inefficiency and takes two forms: Decreasing returns to scale and increasing returns to scale. DRS imply that a firm is too large to take full advantage of scale size. In contrast, a firm experiencing IRS is too small for its scale of operations, thus, operates at sub optimum scale size. A firm is efficient if it operates at constant returns to scale.

### *Method of Selection of Input and Output Variables*

There are three main insurance inputs labor, Material and Capital. Labor can be further divided into agent and home office labor. The category of business service and materials is usually not further sub divided, but includes items like travel, communication, and advertising. And, at least three categories of capital can be distinguished: Physical, Debt and Equity Capital. (Ram Pratap Sinha, 2007<sup>v</sup>).

### *Measurement of Output*

The outputs of financial service firms are measured according to three main approaches:

a) The Asset Approach, b) The user Cost Approach, c) The value Added Approach

The **Asset approach** treats financial firm as pure financial intermediary which borrow funds from their customers which are invested and thus transformed into assets, interest payments are paid out to cover the time value of the funds used. Applying the asset approach would mean that only intermediation services provided by life insurance firms are taken into account without any regard to the risk pooling and risk bearing services rendered by them.

The **User cost approach** was developed by Hancock (1985). It determines whether a financial product is an input or an output by analyzing if its net contribution to the revenues of an insurance company is positive or negative. According to that, a product is

considered an output, if its financial return exceeds the opportunity cost. Otherwise the financial product would be classified as an input. This method would require precise information on product revenues and opportunity costs which cannot be obtained for the Indian life insurance firms.

The **value Added Approach** differs from the asset approach and the user cost approach as it considers all asset and liability categories to have some output characteristics. Those categories which have substantial value added are then used as the important outputs. The remaining categories are treated as rather unimportant outputs, intermediation products, or inputs. An important advantage compared to the user cost approach consists in the fact that the value added approach uses operating costs data rather than determining the costs implicitly or using opportunity costs. The value added approach is considered to be the most appropriate method to measuring output of financial firms and is widely used in recent insurance studies.

On the basis of value added approach and considers two output proxies: Benefit paid to the customer and Net premium mobilized by the insurance companies. So Net Premium is taken as the output indicator for the study.

***The variables of inputs which are considered under the present study are as:***

Equity capital (x1): Cummins/Tennyson/Weiss, 1999<sup>vi</sup>) have defined capital into three categories Physical, Debt and equity Capital. Physical capital is often included in the business service and material category, but debt and equity capital are important inputs for which adequate cost measures have to be found. The choice of inputs is mainly determined by the data that are publicly available in the countries. In this study equity share capital has taken as the first indicator of input.

Labor (x2): As the insurance companies, do not constitute the part of the manufacturing industries rather form a part of the financial service industry, so it does not uses raw material as primary input. In financial service industry the cost of labor is the most important input. The main difficulty regarding this input is to get salary data of insurers, which is not feasible. So, amount of commission as the second indicator of input.

***The variables of outputs which are considered under the present study are as:***

Premium (y1): The choice of output indicator has been controversial in the insurance

literature. Premium is to insurers what income to manufacturers, and therefore, that insurance premium should be regarded as the principal indicator of output. In general, insurance outputs can be measured by premium revenues, benefits and claims costs and investment income. The argument is that the objective in efficiency analysis is output maximization whereas normal practice for an insurance company is to minimize insurance claims. (Dutta and Sengupta(2011<sup>vii</sup>)).

**Data Analysis and Interpretation**

**Table 1 Showing Company-Wise Analysis of Life Insurance Companies**

<b>Bajaj Allianz Insurance</b>					
<b>Indicator</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
TE	0.63	0.743	0.936	1	1
PTE	1	1	1	1	1
SE	0.633	0.743	0.936	1	1
R to S	Increasing	Increasing	Increasing	-	-
<b>Reliance Life Insurance</b>					
<b>Indicators</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
TE	0.382	0.425	0.425	0.538	0.505
PTE	0.561	0.551	0.535	0.538	0.514
SE	0.68	0.771	0.795	0.999	0.982
R to S	Increasing	Increasing	Increasing	Increasing	Increasing
<b>Aviva Life Insurance</b>					
<b>Indicators</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
TE	0.598	0.548	0.728	0.985	0.827
PTE	0.088	0.913	0.908	1	1
SE	0.679	0.600	0.802	0.985	0.827
R to S	Increasing	Increasing	Increasing	Increasing	Increasing
<b>Birla Sun Life Insurance</b>					
<b>Indicators</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
TE	0.433	0.389	0.468	0.69	0.706
PTE	0.535	0.481	0.528	0.706	0.712
SE	0.808	0.809	0.886	0.979	0.992
R to S	Increasing	Increasing	Increasing	Decreasing	Increasing

<b>HDFC</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	0.597	0.486	0.592	0.684	0.72
PTE	0.671	0.562	0.623	0.695	0.898
SE	0.89	0.865	0.95	0.985	0.802
R to S	Increasing	Increasing	Increasing	Decreasing	Decreasing
<b>ICICI Prudential Life Insurance</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	1	1	1	0.909	0.720
PTE	1	1	1	0.961	0.958
SE	1	1	1	0.946	0.751
R to S	Constant	Constant	Constant	Decreasing	Decreasing
<b>Ing Vysya Life Insurance</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	0.596	0.496	0.41	.484	0.603
PTE	1	1	0.836	0.786	0.939
SE	0.596	0.496	0.491	.616	0.642
R to S	Increasing	Increasing	Increasing	Increasing	Increasing
<b>Life insurance Corporation of India</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	1	1	1	1	1
PTE	1	1	1	1	1
SE	1	1	1	1	1
R to S	Constant	Constant	Constant	Constant	Constant
<b>Max New York Life Insurance</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	0.449	0.421	0.338	0.417	0.44
PTE	0.57	0.538	0.392	.042	0.44
SE	0.787	0.782	0.862	0.993	0.999
R to S	Increasing	Increasing	Increasing	Decreasing	Increasing
<b>Met Life Insurance Company</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	0.26	0.316	0.901	0.863	0.81
PTE	0.49	0.518	1	0.869	0.908

SE	0.531	0.611	0.901	0.993	0.892
R to S	Increasing	Increasing	Increasing	Increasing	Increasing
<b>Om Kotak Life Insurance Company</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	0.474	0.623	0.717	1	0.963
PTE	1	1	1	1	1
SE	0.474	0.623	0.717	1	0.963
R to S	Increasing	Increasing	Increasing	Increasing	Decreasing
<b>SBI Life Insurance Company</b>					
Indicators	2008-09	2009-10	2010-11	2011-12	2012-13
TE	0.703	0.662	0.773	1	0.831
PTE	0.859	0.768	0.804	1	1
SE	0.818	0.862	0.962	1	0.831
R to S	Increasing	Increasing	Increasing	Increasing	Increasing

Table 1 depicts company-wise efficiency analysis of life insurance companies in India. Technical, Pure Technical and Scale efficiency of all the twelve life insurance companies has been shown for the period of 2008-09 to 2012-13. Bajaj Allianz showed an increasing trend of efficiency in the first three years i.e. 2008-09 to 2010-11 and subsequently achieved the efficient frontier w.e.f 2011-12 (The companies that lie on efficient frontier mean that they are operational on optimal scale). In case of Reliance Life insurance, technical efficiency has shown a mixed trend but in case of scale efficiency an upward trend has been reported, which shows that company has sufficient resources or inputs to attain desirable outputs. Aviva is performing better than reliance life in terms of technical efficiency. However, its scale efficiency is quite low. Birla Sun Life reported very weak technical but high scale efficiency. ICICI Prudential life insurance is fully efficient during the three out of five year's period under study. Results also showed that LIC is the fully efficient company in all the five years. Also, it has been found that there are four inefficient companies which do not lie on the efficient frontier in any year i.e. Reliance, HDFC, Max New York and Birla Sun Life. This proves LIC being the only public sector company holding its position tightly and lying on the efficient frontier in all the years as against private sector companies. In short, it can be concluded that some private companies are doing extremely well in this sector, whereas, some companies have not even touched the efficient frontier.

**Table II Showing Year Wise Analysis of TE, PTE, SE**

Company	TE	PTE	SE	R to S	Company	TE	PTE	SE	R to S
2008-09					2009-10				
Bajaj	0.633	1	0.635	Increasing	Bajaj	0.743	1	0.743	Increasing
Reliance	0.382	0.561	0.68	Increasing	Reliance	0.425	0.556	0.771	Increasing
Aviva	0.598	0.88	0.679	Increasing	Aviva	0.548	0.913	0.6	Increasing
Birla	0.433	0.535	0.808	Increasing	Birla	0.389	0.481	0.809	Increasing
HDFC	0.597	0.671	0.89	Increasing	HDFC	0.486	0.562	0.865	Increasing
ICICI	1	1	1	Constant	ICICI	1	1	1	Constant
IngVysya	0.596	1	0.596	Increasing	Ing Vysya	0.496	1	0.496	Increasing
LIC	1	1	1	Constant	LIC	1	1	1	Constant
MNYL	0.449	0.57	0.787	Increasing	MNYL	0.421	0.538	0.782	Increasing
Met Life	0.26	0.49	0.531	Increasing	Met Life	0.316	0.578	0.611	Increasing
Kotak	0.474	1	0.474	Increasing	Kotak	0.623	1	0.623	Increasing
SBI	0.703	0.859	0.818	Increasing	SBI	0.662	0.768	0.862	Increasing
<b>2010-11</b>					<b>2011-12</b>				
Bajaj	0.936	1	0.936	Increasing	Bajaj	1	1	1	Constant
Reliance	0.425	0.535	0.795	Increasing	Reliance	0.538	0.538	0.999	Increasing
Aviva	0.728	0.908	0.802	Increasing	Aviva	0.985	1	0.985	Increasing
Birla	0.468	0.528	0.886	Increasing	Birla	0.69	0.706	0.977	Decreasing
HDFC	0.592	0.623	0.95	Increasing	HDFC	0.684	0.695	0.983	Decreasing
ICICI	1	1	1	Constant	ICICI	0.909	0.961	0.946	Decreasing
Ing Vysya	0.41	0.836	0.491	Increasing	Ing Vysya	0.484	0.786	0.616	Increasing
LIC	1	1	1	Constant	LIC	1	1	1	Constant
MNYL	0.338	0.392	0.662	Increasing	MNYL	0.417	0.42	0.993	Decreasing
Met Life	0.901	1	0.901	Increasing	Met Life	0.863	0.869	0.993	Increasing
Kotak	0.717	1	0.717	Increasing	Kotak	1	1	1	Constant
SBI	0.773	0.804	0.962	Increasing	SBI	1	1	1	Constant
<b>2012-13</b>									
Bajaj	1	1	1	Constant					
Reliance	0.505	0.514	0.982	Increasing					
Aviva	0.827	1	0.827	Increasing					
Birla	0.706	0.712	0.992	Increasing					
HDFC	0.72	0.898	0.802	Decreasing					
ICICI	0.72	0.958	0.751	Decreasing					
Ing Vysya	0.603	0.939	0.642	Increasing					
LIC	1	1	1	Constant					
MNYL	0.44	0.44	0.999	Increasing					
Met Life	0.81	0.908	0.892	Increasing					
Kotak	0.963	1	0.963	Decreasing					
SBI	0.831	1	0.831	Increasing					



Table II shows the year-wise efficiency of life insurance companies in India. In the year wise analysis, an effort has been made to find out the year in which maximum number of life insurers lied on the efficient frontier with a score equal to 1. It was found that LIC is efficiently performing in all the years with a score equal to 1. In the year 2008-09, companies like Reliance Life, Birla Sun Life, Max New York, Met Life and Kotak were having very low technical efficiency and only ICICI and LIC of India were on the efficient frontier. In year 2009-10 also, no private life insurer lied on the frontier except ICICI and also they have reported very weak technical efficiency. In contrast, the situation is better in the year 2010-11 where the performance efficiency has improved tremendously of insurers like Bajaj, Met Life, Kotak and SBI Life. LIC and ICICI are operating at constant returns to scale. In the year 2011-12, except ING Vysya, no other insurer's efficiency is below 0.50, whereas Bajaj, LIC, Kotak and SBI have score equals to 1. In the year 2012-13 only Bajaj Allianz was able to stay back in the competition with LIC and rest of the insurers have registered sound technical and scale efficiency.

**Table III showing overall analysis of mean of TE, PTE and SE**

Year	Mean of TE	Mean of PTE	Mean of SE
2009	0.594	0.797	0.818
2010	0.592	0.778	0.764
2011	0.691	0.802	0.858
2012	0.797	0.831	0.958
2013	0.76	0.864	0.89

In this table, mean efficiency of both the sectors is given. For the purpose of overall analysis, mean efficiency scores have been classified into 0-0.5, 0.5 to 0.7 and 0.7-9, and thereafter, the comparison of all insurers has been made with respect to their efficiency scores in order to find out the range within which they lie. It was derived that, no single insurer falls in the first category in year 2008-09. From the year 2009 to 2013, all the insurers fall in the second and third category. This might be because all the insurers are operating at increasing returns to scale or it can be contributed by Pure Technical efficiency and Scale efficiency. By comparing it was found that all the insurers are also better at Technical efficiency, as the mean of TE is more as compared to mean of PTE in all the years. This can also be justified through scale economies as most of the life insurance companies have strong increasing returns to scale and also taking advantages from the scale economies which have increased from 0.818 to 0.89.

## CONCLUSION & IMPLICATIONS OF THE STUDY

The life insurance sector of any economy plays a very valuable role in the growth and development of that economy. From an investor's point of view, although a number of financial planning instruments are available in the market, but these options focus only on one side of the coin i.e. the growth of money invested. They totally ignore the other side, which is protection against major risk to human life e.g. early death, disability and critical illness etc. These emergencies can be secured with the help of insurance. Thus, efficient working of various insurance companies becomes imperative for benefit of not only the company itself but also for the investors and the economy as a whole.

This research endeavor has facilitated in understanding the comparative efficiency level of all the life insurance companies in India. Data envelopment technique (DEA) has been employed for the present study. The DEA allows managers to identify the most efficient Decision Making Units (DMUs) and compare them with the relatively inefficient units. With the help of this analysis, efficiency of 12 life insurance companies including one public insurance company has been checked by taking one output namely ( Net Premium ) and inputs (Equity Capital, Labor). It has been found that out of 12 life insurance companies; only ICICI was able to reach to full technical efficiency and that too in first three years of study period i.e. year 2006-07 to year 2009-2010. In the year 2011-12, only Om Kotak Life insurance Company and SBI Life Insurance Company were able to reach at the efficiency level. Life insurance Corporation of India was efficient in all the years. Based on this and the other results of the study, the insurers can get aware of their position and efficiency level as compared to their competitors and take required managerial steps to improve upon the resource utilization and accordingly enhance their operational efficiency.

## Endnotes

<sup>i</sup> IRDA Annual Reports 2012-13.

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<sup>iii</sup> Cummins,D.J, Weiss,A.M, Xie, X.,Zi, H. (2010) Economies of scope in Financial Services:A DEA Efficiency Analysis of the US Insurance Industry, Journal of Banking and Finance, 34, 1525-1539.

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## AN EVALUATION OF THE GOVERNMENT REVENUE AND EXPENDITURE PATTERN IN PUNJAB STATE OF INDIA

Rajni Bala<sup>1</sup> and Sandeep Singh<sup>2</sup>

*The article investigates the effect of state government budget on economic growth in case of Punjab state of India. The main objective of this study was to examine the causal relationship between government receipts and government expenditures for the state of Punjab over the period of 23 years i.e. 1990 to 2012 using annual data set. The paper tests whether government revenue causes government expenditure or whether the causality runs from government expenditure to government revenue, and if there is bidirectional causality. Developed time series techniques are used namely Augmented Dickey-Fuller (ADF) for unit root test, Phillips perron unit root test and KPSS unit root tests are performed on the levels, first differences and second differences of the variables. KPSS has the null hypothesis of stationarity and the ADF & PP has the null hypothesis of non-stationarity. The Johnson co-integration test is applied to examine the long-run relationship between the variables i.e. receipts and expenditures and VAR Granger Causality test is applied to examine the direction of causality between the variables i.e. receipts and expenditures. Moreover, the granger causality test results revealed the presence of uni-directional and bi-directional causality from the receipts to expenditures and expenditures to receipts. The findings of the study showed that there is a positive relationship between the receipts and expenditures in the long run. The results of the study suggest that the government should focus on economic policies to increase the receipts and expenditures as a potential source of economic growth in Punjab state of India.*

**Key words:** Government budget, receipts and expenditures, unit root test, co-integration and granger causality etc.

### INTRODUCTION

Economic and Statistical Organization acts as the data bank and caters to the statistical

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needs of the State as well as Central Government, policy makers and research institutions and individual researchers. The Organization collects primary as well as secondary data at the state, district, block and village level. The data thus collected is compiled, analyzed, interpreted and disseminated through various departmental publications. This Organization also coordinates statistical activities within the State and keeps proper liaison with the Central Statistical Organization, Government of India. "Statistical Abstract of Punjab" and "Economic Survey of Punjab" are two widely known annual publications of this Organization, which contain comprehensive data-based information on various socioeconomic aspects in the State. Both of these publications are Budget Documents.

Government expenditure and government revenue are two of the major instruments of economic policy. In recent years, the relation between public outlays and public receipts has been one of the fundamental issues of applied economics. The relationship between government revenue and expenditure is a major concern for economists and policy makers alike. This controversial issue has been the subject of extensive theoretical and empirical research for decades. This research became more important and relevant since governments have been incurring continuous budget deficit in both developed and developing countries. Understanding this relationship is an important element for an effective fiscal policy. Therefore, the causal relationship between government expenditure and government revenues comes to be an empirical one. The purpose of this paper is to investigate the causal relationship between government expenditure and revenues over the period 1990 to 2012 in Punjab state of India. The dynamic relationship between government revenues and expenditure has been widely discussed and analyzed during the last decade. There are at least two major reasons for this; the rather dramatic public sector growth in most developed countries since World War II and the growing budget deficits of central and local governments. The conducted research has, almost exclusively, been directed towards the central government level, a concentration that might be explained by the fact that local governments constitute a relatively unimportant component in public decision-making in many countries. In the developing countries, on the other hand, local governments play a major role in the public sector.

Government budget deficits have significant impact on the economy. Such fiscal imbalance tends to reduce national savings and economic growth. Therefore, the decrease of the fiscal deficit by reducing government expenditure and/or raising

revenues would stimulate economic growth. However, one of the most studied topics in macroeconomics is the testing of the relationship between government expenditures and its revenues. Determination of the interdependence direction between these two macroeconomic variables would assist policy makers to recognize the source of any fiscal imbalances that might exist. Consequently, this would facilitate efforts to develop a suitable strategy for fiscal reforms. Hence, the analyzing of relationship between government expenditure and government revenue has attracted significant interest.

### **Ecological Funds**

Ecological funds are earmarked financing mechanisms that may support a variety of ecological expenditures. Ecological funds are increasingly popular environmental financing mechanism in developing economies. The failure of governments to tackle environmental problems by putting in place environmental regulations and enforcement mechanisms, as well as the failure of the financial and capital markets to provide access to financing at reasonable terms, are the typically underlying reasons why special environmental financing mechanisms are established. (World bank group July 1998, pollution prevention and abatement handbook)

Environmental funds provide financing for a broad range of environmental needs. There are several funds that now have years of experience, and others that have been created or are still in the process of establishment. Most environmental funds include in their governing bodies representative of the national government as well as non-government organizations, and are managed by professional staff knowledgeable about the national conservation situations and about the mechanisms of conservation finance. Some of the programs and activities financed by these funds are the recurrent expenses of national parks and protected areas, biodiversity conservation and sustainable use of natural resources and strengthening of local conservation institutions. The variety of available funding mechanisms in EFs assure that each fund can adapt to the context of its national laws and conditions. (Oleas Reyna)

Although the government funding for environmental up gradation has grown significantly in Punjab state of India, green researchers have not paid much attention to the empirical assessment of the contributions of the environmental sector to Punjab economy. The present study however, attempts to address two empirical issues:

First, is there any long equilibrium relationship between receipts and expenditures in Punjab state of India?

Second, if a long-run relationship exists, what is the direction of a causal relationship between the two variables?

The remainder of this paper is organized into four sections as follows: section **one** provides an introduction of Punjab state government budget and public funds; section **two** details about the objective and the need of the study, section **three** discusses data base and research design, section **four** discusses the results and analysis and section **five** concludes the study with the summary of the main points and discusses the research outcomes.

## **OBJECTIVE AND NEED OF THE STUDY**

From the review of the existing literature it has been found that most of the researches are based on the reasons for climate change; air pollution; water pollution; global warming, etc. No major research activity is undertaken especially in Punjab state of India focusing on the pattern of government revenues and government expenditures. Thus the present study is based on the following objectives'

- To analyze the pattern of receipts and expenditures of public funds by the government of Punjab.

The paper attempts to examine the pattern of expenditure and receipts of the government of Punjab to judge whether the priority sector is getting due attention and the funds are being optimally used. Further, while studying the pattern of expenditures and receipts it has been evaluated whether Punjab government is spending sufficiently for upgrading ecological environment because the forest cover of Punjab is less than any other state of India including Rajasthan. Another major concern is the industrialization of the agrarian state of Punjab which is also known as the food bowl of India i.e. the expenditure on the establishment and growth of large industry, small scale industry and cottage industry. An attempt has also been made to critically evaluate the rate of growth of the state and the welfare of its subjects.



## **DATABASE AND RESEARCH DESIGN**

In this paper, we use annual data from the periods of 1990 to 2012; two main variables used in the study are government expenditures and government receipts; and will test it by the time series technique, Johnson Co integration is used to find out the existence of long run relationship between these variables and VAR Granger Causality test is used to identify whether there is a unidirectional or bidirectional causal relation between receipts and expenditures in the case of Punjab state of India. The causality test relationship between government expenditure and revenues requires three steps. First, the time series would be analyzed in order to determine the order of integration. Second, investigating the long run equilibrium relationship between government expenditure and revenues. Finally, the short run as well as the long run causality relationship between government expenditure and revenues would be investigated.

Thus, the first step, in our methodology, is to determine whether the variables we use are stationary or non-stationary. If a series non-stationary, then all the usual regression results suffer from spurious regression problem, thereby leading to biased and meaningless results. Although we expect that in growing economics, such as Punjab, economic time series data are likely non-stationary or exhibit a unit root in their levels.

### **Unit Root Test**

One of the most widely used unit root test is the Augmented Dickey-Fuller (ADF) unit root test (Dickey and Fuller, 1979, 1981). Alternatively, Phillips-Perron (PP) (1988) and KPSS Unit Root Tests are performed both the levels and the first differences of the variables. In order to test for the existence of unit roots and to determine the order of differencing necessary to convert non stationary series into stationary series, Augmented Dicky-fuller (ADF) and Phillip Perron test (PP) tests have been applied. Therefore, prior to applying econometrical procedures, if the both variable receipts as well as expenditures are found to be non stationary, these will be differenced to convert these into stationary series. Table 3 reports the unit root test which suggests that receipts and expenditures are non stationary at levels, whereas, their log first difference is stationary.

### **Cointegration Test**

If the time series data of each variable is found to be non-stationary at level, then there may exist a long run relationship between variables. Co integration is a powerful concept, because it helps to study the stationary relationship among two or more time series, each of which is individually non-stationary. A series is said to be integrated if it accumulates some past effects, such a series is non-stationary because its future path depends upon all such past influences. To examine the Co integration relationship between receipts and expenditures, present study adopted the procedure developed by Johansen (1988, 1991). The Johansen procedure proposed two test statistics for testing the number of Co integrating vectors, a trace test (Tr) and a Max-Eigen value test (MAX) statistics. Table no. V reports the results of Johansen test, based on Max Eigenvalue and Trace statistic test. It depicts that the null hypothesis of no Co integration was rejected at the 5% level of significance.

### **Causality Test**

To test whether government revenue Granger causes government expenditure, this paper applies the causality test developed by Granger (1969). The granger causality test is applied in order to analyze the lead and lag relationship. The null hypothesis of Granger Causality methodology is that there is no causal relationship between two variables; however, rejection of the null hypothesis suggests that there is a significant relationship between receipts and expenditures and it may be unidirectional or may be bidirectional subject to the conditions in which these two series interact. This causality can be concluded from the p-value. If a p-value found to be more than 5% level of significance than there is no causal relationship between receipts and expenditures.

## **RESULTS AND ANALYSIS**

Series has a unit root problem and the series is a non-stationary series. Although we expect that in growing economics such as India, economic time series data are likely non-stationary or exhibit a unit root in their levels. The Augmented dickey fuller test (ADF), Phillips perron unit root test and KPSS unit root tests are performed on the levels, first differences and second differences of the variables. KPSS has the null hypothesis of stationarity and the ADF & PP has the null hypothesis of non-stationarity. Results of ADF, PP and KPSS tests for stationarity are reported in table-1. All variables are stationary at first difference with 95% level of confidence in table-1 except receipts of social services which are stationarity at second difference (with trend and intercept).

Table 1: Unit root test

Sectors	Time series variable	ADF Unit Test			Philip Peron Test			KPSS LM Test		
		None	With Intercept	With trend & Intercept	None	With Intercept	With trend & Intercept	With Intercept	With trend & Intercept	
Agriculture & allied services	Receipts	At Level	1.807 (0.979)	1.078 (0.995)	-3.153 (0.119)	0.203 (.735)	-1.717 (.409)	-3.153 (.119)	7.297 (.000)	1.243 (.227)
		At 1 diff.	-7.103 (.000)	-7.430 (.000)	-8.017 (.000)	-7.119 (.000)	-7.430 (.000)	-8.493 (.000)	0.632 (.533)	-0.123 (.902)
	Expenditure	At Level	-0.057 (.652)	-0.919 (.761)	-2.221 (.454)	-2.412 (.018)	-4.203 (.003)	-5.368 (.001)	6.337 (.000)	2.064 (.051)
		At 1 diff.	-4.262 (.000)	-4.578 (.001)	-9.735 (.000)	-9.274 (.000)	-9.123 (.000)	-9.735 (.000)	-0.343 (.734)	-0.614 (.545)
	Rural development	At Level	6.202 (1.000)	4.277 (1.000)	1.546 (1.000)	10.149 (1.000)	7.182 (1.000)	1.973 (1.000)	4.399 (0.000)	-2.514 (.020)
		At 1 diff.	-1.475 (0.127)	-2.143 (0.231)	-3.813 (0.036)	-1.164 (.214)	-1.969 (.296)	-3.810 (0.036)	3.172 (0.004)	-1.360 (.188)
At 2 diff.		-7.352 (0.000)	-7.370 (0.000)	-7.291 (0.000)	-8.724 (0.000)	-9.900 (0.000)	-17.208 (0.000)	0.452 (0.655)	-0.441 (0.663)	
At Level		-3.170 (0.003)	-3.478 (0.020)	-4.200 (0.019)	-1.367 (0.154)	-1.939 (0.309)	-2.536 (0.309)	3.677 (0.001)	-1.031 (0.313)	
Special area programme	Expenditure	-2.869 (0.006)	-2.960 (0.059)	-2.885 (0.190)	-6.549 (0.000)	-6.515 (0.000)	-6.304 (0.000)	0.131 (0.896)	0.442 (0.662)	
	Receipts	-7.205 (0.000)	-7.155 (0.000)	-7.685 (0.000)	-19.146 (0.000)	-19.933 (0.000)	-33.846 (0.000)	-0.081 (0.935)	0.078 (0.938)	
Irrigation & flood control	At Level	-1.377 (0.151)	-1.905 (0.323)	-1.882 (0.629)	-1.377 (0.151)	-1.833 (0.355)	-1.782 (0.678)	4.643 (0.000)	2.628 (0.015)	
	At 1 diff.	-5.921 (0.000)	-5.776 (0.000)	-5.849 (0.000)	-5.921 (0.000)	-5.776 (0.000)	-5.849 (0.000)	-0.099 (0.921)	0.586 (0.564)	
	At Level	-1.270 (0.181)	-1.730 (0.403)	-1.745 (0.695)	-1.270 (0.181)	-1.751 (0.392)	-1.739 (0.689)	4.708 (0.000)	2.799 (0.010)	
	At 1 diff.	-5.000 (0.000)	-4.878 (0.009)	-4.919 (0.004)	-5.000 (0.000)	-4.878 (0.000)	-4.920 (0.004)	-0.116 (0.908)	0.622 (0.540)	
Irrigation & flood control	At Level	3.243 (0.999)	1.921 (0.999)	0.440 (0.998)	2.588 (0.996)	1.380 (0.998)	-0.162 (0.989)	7.373 (0.000)	0.931 (.362)	
	At 1 diff.	-2.108	-2.615	-3.068	-1.939	-2.533	-3.023	2.417	-0.578	

	At 2 diff.	(0.036)	(0.105)	(0.138)	(0.051)	(0.122)	(0.149)	(0.024)	(.569)
	At Level	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.696)	(0.827)
Expenditure	At 1 diff.	(0.972)	(.580)	(0.133)	(0.889)	(0.711)	(-0.142)	(0.000)	(0.080)
	At 2 diff.	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.381)	(0.898)
	At Level	(0.988)	(0.988)	(0.805)	(0.988)	(0.988)	(.951)	(0.000)	(0.955)
	At 1 diff.	(0.008)	(0.047)	(0.117)	(0.008)	(0.049)	(0.147)	(0.049)	(0.752)
Receipts	At 2 diff.	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(-0.031)	(0.215)
	At Level	(0.816)	(0.790)	(0.412)	(0.707)	(0.505)	(0.158)	(0.000)	(0.069)
	At 1 diff.	(0.050)	(0.216)	(0.450)	(0.000)	(0.000)	(0.000)	(0.514)	(0.855)
	At 2 diff.	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(-0.225)	(0.249)
Expenditure	At Level	(0.096)	(0.353)	(0.046)	(0.256)	(0.344)	(0.047)	(0.000)	(0.000)
	At 1 diff.	(0.000)	(0.000)	(0.002)	(0.660)	(0.000)	(0.000)	(-0.188)	(0.464)
	At Level	(0.051)	(0.063)	(0.078)	(0.062)	(0.063)	(0.078)	(0.000)	(0.000)
	At 2 diff.	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(-0.153)	(0.219)
Receipts	At Level	(0.999)	(1.000)	(0.996)	(0.762)	(0.745)	(0.015)	(0.000)	(0.034)
	At 1 diff.	(0.873)	(0.892)	(0.000)	(0.000)	(0.000)	(0.000)	(0.464)	(0.918)
	At 2 diff.	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.858)	(0.880)
	At Level	(1.000)	(1.000)	(1.000)	(0.978)	(0.997)	(0.841)	(0.001)	(0.017)
Expenditure	At 1 diff.	(0.976)	(0.993)	(0.043)	(0.000)	(0.000)	(0.000)	(0.159)	(0.624)
	At Level	(0.348)	(0.842)	(0.121)	(0.784)	(0.316)	(-1.369)	(0.000)	(-2.583)
	At 2 diff.	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	At Level	(1.780)	(0.968)	(-3.766)	(-5.060)	(-5.656)	(-15.107)	(1.457)	(-0.497)

	At 2 diff.	-4.554 (0.000)	-5.090 (0.000)	-6.965 (0.000)	-15.913 (0.000)	-18.080 (0.000)	-18.796 (0.000)	-0.031 (0.975)	0.160 (0.873)
Science, technology & environment	At Level	-1.117 (0.231)	-1.627 (0.452)	-2.738 (0.232)	-0.846 (0.337)	-1.496 (0.516)	-2.711 (0.241)	2.924 (0.007)	-1.724 (0.099)
	At 1 diff.	-5.961 (0.000)	-5.910 (0.000)	-5.796 (0.000)	-6.303 (0.000)	-6.841 (0.000)	-8.516 (0.000)	0.535 (0.597)	-0.086 (0.932)
	At Level	-4.322 (0.000)	-5.211 (0.000)	-4.649 (0.008)	-1.423 (0.139)	-1.735 (0.400)	-2.131 (0.501)	2.730 (0.012)	-1.465 (0.157)
	At 1 diff.	-4.194 (0.000)	-4.086 (0.005)	-3.977 (0.026)	-4.177 (0.000)	-4.064 (0.005)	-3.953 (0.027)	0.164 (0.871)	0.310 (0.759)
	At Level	-1.327 (0.165)	-2.277 (0.187)	-3.812 (0.036)	-1.133 (0.225)	-2.290 (0.183)	-2.665 (0.258)	4.123 (0.000)	-0.103 (0.918)
General economic services	At 1 diff.	-4.267 (0.000)	-4.195 (0.004)	-3.443 (0.078)	-4.795 (0.000)	-5.198 (0.000)	-5.095 (0.002)	0.483 (0.633)	-0.086 (0.932)
	At Level	-2.680 (0.009)	-3.170 (0.035)	-3.481 (0.066)	-2.680 (0.009)	-3.189 (0.034)	-3.453 (0.069)	2.446 (0.022)	-0.300 (0.766)
	At 1 diff.	-5.841 (0.000)	-5.697 (0.000)	-3.797 (0.043)	-9.039 (0.000)	-9.020 (0.000)	-8.641 (0.000)	0.132 (0.895)	0.092 (0.927)
	At Level	4.515 (1.000)	3.131 (1.000)	1.425 (0.999)	4.515 (1.000)	4.056 (1.000)	1.711 (1.000)	5.896 (0.000)	-0.812 (0.425)
	At 1 diff.	1.948 (0.983)	1.278 (0.997)	0.296 (0.996)	-2.097 (0.037)	-2.989 (0.052)	-4.018 (0.024)	2.724 (0.012)	-0.938 (0.359)
Social services	At 2 diff.	-0.902 (0.311)	-1.199 (0.650)	-7.615 (0.000)	-10.050 (0.000)	-10.625 (0.000)	-25.496 (0.000)	0.433 (0.669)	-0.139 (0.890)
	At Level	3.118 (0.998)	1.946 (0.999)	0.091 (0.994)	3.356 (0.000)	1.506 (0.998)	-1.445 (0.817)	5.404 (0.000)	-1.018 (0.320)
	At 1 diff.	-0.671 (0.412)	-1.261 (0.624)	-8.031 (0.000)	-5.894 (0.000)	-6.937 (0.000)	-8.584 (0.000)	1.543 (0.137)	-0.443 (0.662)
	At 2 diff.	-8.551 (0.000)	-8.372 (0.000)	-8.094 (0.000)	-20.911 (0.000)	-24.385 (0.000)	-31.910 (0.000)	0.084 (0.933)	-0.026 (0.978)
	At Level	-3.616 (0.001)	-4.562 (0.001)	-4.692 (0.005)	-3.597 (0.001)	-4.562 (0.001)	-4.692 (0.005)	2.586 (0.016)	0.360 (0.722)
General services	At 1 diff.	-7.801 (0.000)	-7.617 (0.000)	-7.414 (0.000)	-3.597 (0.001)	-4.562 (0.001)	-4.692 (0.005)	2.586 (0.016)	0.360 (0.722)
	At 2 diff.	-4.985 (0.000)	-4.816 (0.001)	-4.642 (0.008)	-27.394 (0.000)	-26.534 (0.000)	-25.655 (0.000)	-0.009 (0.992)	0.017 (0.986)
	At Level	1.310 (0.946)	1.770 (0.999)	1.027 (0.999)	1.310 (0.946)	0.591 (0.986)	-0.601 (0.968)	4.730 (0.000)	-0.437 (0.666)
	At 1 diff.	0.233 (0.743)	-0.155 (0.929)	-0.857 (0.941)	-4.065 (0.003)	-4.421 (0.002)	-4.975 (0.003)	1.467 (0.157)	-0.594 (0.559)
	At 2 diff.	-9.189 (0.000)	-9.152 (0.000)	-9.321 (0.000)	-9.189 (0.000)	-9.449 (0.000)	-13.518 (0.000)	-0.175 (0.862)	0.417 (0.681)

Source: Authors' own computation

Sectors	Co-integration test results of receipts and expenditures			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
Agriculture & allied services	Trace			
	r=0	0.609622	21.70346	15.49471
	r≤1	0.088677	1.950023	3.841466
	Max-Eigen			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
	r=0	0.609622	19.75344	14.26460
r≤1	0.088677	1.950023	3.841466	
Rural development	Trace			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
	r=0	0.455401	12.86726	15.49471
	r≤1	0.005008	0.105431	3.841466
	Max-Eigen			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
r=0	0.455401	12.76183	14.26460	
r≤1	0.005008	0.105431	3.841466	
Special area programme	Trace			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
	r=0	0.296860	8.719343	15.49471
	r≤1	0.175320	3.084160	3.841466
	Max-Eigen			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
r=0	0.296860	5.635183	14.26460	
r≤1	0.175320	3.084160	3.841466	
Irrigation & flood control	Trace			
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value
r=0	0.296860	5.635183	14.26460	
r≤1	0.175320	3.084160	3.841466	
Max-Eigen				
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	
r=0	0.296860	5.635183	14.26460	
r≤1	0.175320	3.084160	3.841466	
Max-Eigen				
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	
r=0	0.296860	5.635183	14.26460	
r≤1	0.175320	3.084160	3.841466	

<b>Energy</b>	r=0	0.423563	13.64229	15.49471	0.0933
	r≤1	0.094025	2.073622	3.841466	0.1499
	<b>Max-Eigen</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.***
	r=0	0.423563	11.56867	14.26460	0.1279
	r≤1	0.094025	2.073622	3.841466	0.1499
	<b>Trace</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	r=0	0.342383	8.836881	15.49471	0.3807
	r≤1	0.001670	0.035103	3.841466	0.8513
<b>Industry &amp; minerals</b>	<b>Max-Eigen</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	r=0	0.342383	8.801778	14.26460	0.3030
	r≤1	0.001670	0.035103	3.841466	0.8513
	<b>Trace</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.***
	r=0	0.437372	13.65453	15.49471	0.0929
	r≤1	0.072331	1.576675	3.841466	0.2092
	<b>Max-Eigen</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.***
r=0	0.437372	12.07785	14.26460	0.1078	
r≤1	0.072331	1.576675	3.841466	0.2092	
<b>Transport</b>	<b>Trace</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	r=0	0.632755	23.32677	15.49471	0.0027
	r≤1	0.103334	2.290517	3.841466	0.1302
	<b>Max-Eigen</b>				
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.***
	r=0	0.632755	21.03626	14.26460	0.0037

	$r \leq 1$	0.103334	2.290517	3.841466	0.1302
<b>Science, technology &amp; environment</b>	Hypothesized No. of CE(s)	Eigenvalue	<b>Trace</b>		
			Statistic	Critical Value	Prob. **
	$r=0$	0.693354	28.51648	15.49471	0.0003
	$r \leq 1$	0.161269	3.693181	3.841466	0.0546
			<b>Max-Eigen</b>		
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **
	$r=0$	0.693354	24.82330	14.26460	0.0008
	$r \leq 1$	0.161269	3.693181	3.841466	0.0546
			<b>Trace</b>		
	Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **
$r=0$	0.466035	13.31710	15.49471	0.1037	
$r \leq 1$	0.006700	0.141178	3.841466	0.7071	
		<b>Max-Eigen</b>			
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **	
$r=0$	0.466035	13.17592	14.26460	0.0737	
$r \leq 1$	0.006700	0.141178	3.841466	0.7071	
		<b>Trace</b>			
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **	
$r=0$	0.523988	16.84397	15.49471	0.0311	
$r \leq 1$	0.058029	1.255393	3.841466	0.2625	
		<b>Max-Eigen</b>			
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **	
$r=0$	0.523988	15.58857	14.26460	0.0307	
$r \leq 1$	0.058029	1.255393	3.841466	0.2625	
		<b>Trace</b>			
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **	
$r=0$	0.376022	13.05633	15.49471	0.1128	
$r \leq 1$	0.139369	3.151874	3.841466	0.0758	
		<b>Max-Eigen</b>			
Hypothesized No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob. **	
$r=0$	0.376022	9.904458	14.26460	0.2183	
$r \leq 1$	0.139369	3.151874	3.841466	0.0758	

Notes: r stands for the number of cointegrating vectors. (\*) Indicates significance at 5% level

Source: Authors' own computation



Table no. 2 reports the results of Johansen test, based on Max Eigen value and Trace statistic test. It depicts that null hypothesis of no co integration was accepted at 5% level of significance. Table no. 2 shows the absence of co integrating relationship between the variables of the study.

The concept of co integration was first introduced into the literature by Granger (1980). Co integration implies the existence of a long-run relationship between economic variables. The principle of testing for co integration is to test whether two or more integrated variables deviate significantly from a certain relationship (Abadir and Taylor, 1999). In other words, if the variables are co integrated, they move together over time so that short-term disturbances will be corrected in the long-term. This means that if, in the long-run, two or more series move closely together, the difference between them is constant. Otherwise, if two series are not co-integrated, they may wander arbitrarily far away from each other (Dickey et. al., 1991). Further, Granger (1981) showed that when the series becomes stationary only after being differenced once (integrated of order one), they might have linear combinations that are stationary without differencing. In the literature, such series are called “co integrated”. If integration of order one is implied, the next step is to use co integration analysis in order to establish whether there exists a long-run relationship among the set of the integrated variables in question. Table no. 2 shows the absence of co integrating relationship between the variables of the study. Since all the variables are not co integrated, the standard granger causality test to determine short run causal relationship between the variables can be performed without including the error correction term.

In the research study the effort is done in order to analyze the lead and lag relationship between the receipts and the expenditures on the various sectors. The Granger's causality test is applied for the purpose. The Granger's causality test can be mathematically expressed as:

$$Receipts_t = \alpha + \sum_{i=1}^n \beta_i * Receipts_{t-1} + \sum_{j=1}^n \beta_j * Expenditure_{t-1} + \epsilon_t$$

$$Expenditure_t = \alpha + \sum_{i=1}^n \beta_i * Receipts_{t-1} + \sum_{j=1}^n \beta_j * Expenditure_{t-1} + \epsilon_t$$

The results of the Grangers Causality test are shown in table 3

Table 3: Granger causality test

VAR Granger Causality/Block Exogeneity Wald Tests			
Dependent variable: Growth rate of Receipts in agriculture & allied services			
	Chi-sq	df	Prob.
Excluded			
Growth rate of Expenditure	0.871663	2	0.6467
All	0.871663	2	0.6467
Dependent variable: Growth rate of Expenditure in agriculture & allied services			
Excluded			
Growth rate of Receipts	0.686954	2	0.7093
All	0.686954	2	0.7093
Dependent variable: Growth rate of Receipts in rural development			
Excluded			
Expenditure	7.921904	2	0.0190
All	7.921904	2	0.0190
Dependent variable: Growth rate of Expenditure in rural development			
Excluded			
Growth rate of Receipts	1.202999	2	0.5480
All	1.202999	2	0.5480
Dependent variable: Growth rate of Receipts in Special Area Programme			
Excluded			
Growth rate of Expenditure	0.076033	2	0.9627
All	0.076033	2	0.9627
Dependent variable: Growth rate of Expenditure in Special Area Programme			
Excluded			
Growth rate of Receipts	1.408558	2	0.4945
All	1.408558	2	0.4945
Dependent variable: Growth rate of Receipts on Irrigation & Flood Control			
Excluded			
Growth rate of Expenditure	1.818189	2	0.4029

All	1.818189	2	0.4029
<b>Dependent variable: Growth rate of Expenditure on Irrigation &amp; Flood Control</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Receipts	1.791550	2	0.4083
All	1.791550	2	0.4083
<b>Dependent variable: Growth rate of Receipts on Energy</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Expenditure	4.147510	2	0.1257
All	4.147510	2	0.1257
<b>Dependent variable: Growth rate of Expenditure on Energy</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Receipts	0.149837	2	0.9278
All	0.149837	2	0.9278
<b>Dependent variable: Receipts on Industry &amp; Minerals</b>			
Excluded	Chi-sq	df	Prob.
Expenditure	2.635671	2	0.2677
All	2.635671	2	0.2677
<b>Dependent variable: Expenditure on Industry &amp; Minerals</b>			
Excluded	Chi-sq	df	Prob.
Receipts	3.156898	2	0.2063
All	3.156898	2	0.2063
<b>Dependent variable: Growth rate of Receipts on Transport</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Expenditure	103.3551	2	0.0000
All	103.3551	2	0.0000
<b>Dependent variable: Growth rate of Expenditure on Transport</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Receipts	8.737611	2	0.0127
All	8.737611	2	0.0127
<b>Dependent variable: Growth rate of receipts on Science, Technology &amp; Environment</b>			
Excluded	Chi-sq	df	Prob.
Expenditure	60.56197	2	0.0000

All	60.56197	2	0.0000
<b>Dependent variable: Expenditure on Science, Technology &amp; Environment</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Receipts	0.860140	2	0.6505
All	0.860140	2	0.6505
<b>Dependent variable: Receipts on General Economic Services</b>			
Excluded	Chi-sq	df	Prob.
Expenditure	4.844067	2	0.0887
All	4.844067	2	0.0887
<b>Dependent variable: Expenditure on General Economic Services</b>			
Excluded	Chi-sq	df	Prob.
Receipts	5.302950	2	0.0705
All	5.302950	2	0.0705
<b>Dependent variable: Growth rate of Receipts on Social Services</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Expenditure	0.646534	2	0.7238
All	0.646534	2	0.7238
<b>Dependent variable: Growth rate of Expenditure on Social Services</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Receipts	24.05322	2	0.0000
All	24.05322	2	0.0000
<b>Dependent variable: Growth rate of Receipts on General Services</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Expenditure	0.206793	2	0.9018
All	0.206793	2	0.9018
<b>Dependent variable: Growth rate of Expenditure on General Services</b>			
Excluded	Chi-sq	df	Prob.
Growth rate of Receipts	0.043493	2	0.9785
All	0.043493	2	0.9785

**Source:** Authors' own computation

The table-3 indicates the results of granger causality test applied between receipts and expenditure on agriculture on all fourteen sectors. The result of the granger causality test from receipts to expenditure and from expenditure to receipts is shown in above table. It indicates that there does not exist any causality from receipts to the expenditure and from expenditure to receipts in agriculture and allied services, special area programme, irrigation and flood control, energy, industry and minerals, general economic services and general services. This no causality can be concluded from the p-value which is found to be more than 5% level of significance. It indicates that there exists uni-directional causality from receipts to the expenditure in rural development and science, technology & environment and uni-directional causality from expenditure to receipts in social services sector. In case of transport it indicates that there exists bi-directional causality from receipts to expenditure and from expenditure to receipts. This bi-directional causality can be concluded from the p-value which is found to be less than 5% level of significance.

## CONCLUSION AND SUGGESTIONS

Care must be taken to ensure efficiency of utilization of public funds and to increase the productivity of public investment. The honest and concerted efforts of government and non-government organizations can ensure the best results for optimum utilization of public funds. The research outcome will also help the policy makers of India to adopt the appropriate policies with regard to financial development and provide a scope for policy debate. The following implications can be drawn based on these research outcomes: the Punjab government should introduce further financial assistance to improve the effectiveness and efficiency of the state government budget which is a prerequisite to achieve positive spillover of funds.

The present study employs with the relationship between receipts and expenditures using annual data for the period 1990-2012. The empirical analysis suggested that all variables that used in this study present a unit root. Apart from it, long run relationship between the variables has been verified through Johansen' co-integration test. The Granger causality test is then used to investigate the direction of causality between government receipts and government expenditure. The evidence however suggests long-run uni-directional causality and the causality runs from the receipts and expenditure. The results of the study suggest that the government should focus on economic policies to increase the receipts and expenditures as a potential source of

economic growth in Punjab state of India. The research outcomes will also help the policy makers of India to adopt the appropriate policies with regard to economic development and provide a scope for the policy debate.

This study focused on aggregated data to assess the fiscal response by the government to changes in aid flow. A more detailed breakdown of the sources of revenue and expenditure use by the public sector at sectoral level—e.g., transport, irrigation, energy, agriculture, rural development, science, technology & environment etc.—would shed more light on the understanding of how policy makers in the aid recipient country make their public sector decisions. Moreover, the research paper can be further expanded by comparing economic performance of Punjab with other state of India or the comparison of economic performance of India with the other Asian country. Further study can be conducted by taking more than two variables to check the causal relationship. It may be interesting to assess whether a distinction between bilateral and multilateral aid influences the budgetary process.

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**Book Review****AN INTRODUCTION TO CAPITALISM**

**(Swanson, Paul, Routledge, London, 2013, pp.372, Hard Bound,  
Price: £ 105)**

A.J.C. Bose<sup>1</sup>

The book under review is actually an introduction to US capitalism, or to put it differently, a quasi text book on the US economy. It is a book on basic economics for those untrained in economics as well as those trained in “principles of economics” meant to provide, as the author says, a relatively sophisticated understanding of contemporary economic issues and controversies. This is a refreshing beginning indeed unlike the conman lullabies sold worldwide by Professor Mankiw through his celebrated principles of neo-con economics.

When there is Mankiw's Principles of Economics or when there are thousands of other introductory economics text books, why this book? The author justifies this book on two grounds: First, this book is grounded in the historical basis of the economy and so much of it is written as history. This is in contrast to virtually all the introductory texts which follow one general model of a-historical exposition, that established by Paul Samuelson's classic Principles text published shortly after World War II, according to which capitalism is an eternal natural system and economics is defined as “the study of human behavior as a relationship between ends and scarce means which have alternative uses”. Secondly, all the introductory texts are based on the fundamental belief that leaving markets as free as possible will lead to the “ideal economy” that brings about greatest happiness to the greatest number of people. By contrast, this book is not based on the belief in the power, efficiency and ultimate “rightness” of unfettered free markets under capitalism. What comes out in this book is the contrary view that free markets are often the problem, and must be corrected by government action. Related to this critical stance is the explicitly Keynesian approach to the macro economy that this book takes up. The author rejects the free markets approach that dominates both micro- and macro-economics today, and offers a fresh perspective of insights in relation to the world economy currently undergoing severe problems: Why is economic growth anemic? Why is unemployment so high? Why is the distribution of income so uneven? Why is the working class now screwed like never before, or at least like it was exploited in the 19<sup>th</sup> century? What can be done about these problems?

The book is organized as follows. It is divided into four parts. The first part begins with a discussion of different economic systems in order to place capitalism historically. This is followed by discussion on the early development of capitalism in the US up to World War I, focusing on changes in the production relations leading to the establishment of capitalism itself. After which, the author proceeds to examine the worldwide phenomenon of

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imperialism and the US role in it. Lastly the author discusses socialism, which, as a contrast to capitalism, underscores what capitalism is.

In part two of the book, which is the “micro” section of the book, the author examines markets both philosophically and economically. This is not an extensive presentation of supply and demand, complete with graphs and problems, as in a standard principles text, but rather an examination of the nature and essence of markets. The author then proceeds to examine labour markets and the labour process itself in detail, along with certain results flowing from the action of markets, such as income distribution and poverty.

In part three, which is the “macro” section of the text—the heart of the book—the author looks extensively at public policy and the interaction of the government with the market. The government's responses to market failure—in particular to environmental problems—are explored in depth. The author then discusses the theories of output and employment. Emphasizing the inherent instability of the capitalist system, the author develops an essentially Keynesian macro model covering business cycles, unemployment, and overall trends in the economy. Next he discusses US fiscal and monetary policy, as the government attempts to regulate and control the economy. Lastly the author examines international trade and establishes “why free trade doesn't work”.

Part four details the actual US economy after World War I. It is loaded with descriptive and factual knowledge of the US economy over the last 90 years, which covers The Great Depression, the post-war economic boom (i.e. the golden age) and the rise of free market ideology or neoliberalism after the golden age leading to the Great Recession of the 21<sup>st</sup> century or the Second Great Depression. This is where the author fails to do justice. Since the aim of the book is mainly to make those without formal training in economics understand, the author should have taken care to elaborate lucidly the financialization of the economy, the motivations behind it and the underlying reasons that allow it to go unregulated at best, and legally protected and encouraged at worst. In other words, the author must deal with why there is hyperbolic expansion of capitalism of fictitious capital in contrast to the real economy.

On the whole, the book is a welcome addition to the heterodox contributions to understanding the functioning of the economies. A concern of the heterodox tradition is how to teach economics in an accessible but critical way. In this regard, this book does not fare well as much as how Jim Stanford's book—*Economics for Everyone: A Short Guide to the Economics of Capitalism*—does in triggering imagination about how to change the economy through a better understanding in order to improve the lives of the hard-working people who produce the wealth. The book also does not capture organically the predicaments of the workers under capitalism as Gregg Shotwell does, and does very well, for example (<http://monthlyreview.org/2014/04/01/practical-solution-urgent-need>).

All the same, the book's simplicity in conjunction with historicity will appeal to, and facilitate the understanding of, the undergrad students of economics lest they should be brainwashed in the modern class rooms to not taking theory as history.

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