



RECORD HOLDER FOR MOST PEOPLE USING MOUTHWASH AT MULTIPLE VENUES

ISSN : 0972-7361

INDIA
Forbes
Listed Great Indian Institutes
2018-19

SYNERGY

I.T.S JOURNAL OF IT & MANAGEMENT

Vol. 16, No. 2, July - December, 2018

| | |
|---|--------------|
| A Detailed Analysis of the Market Efficiency in the Emerging Economies of the World Through a Quantitative Approach Ajit Shrivastava Bhavesh Mishra | 3-10 |
| Handling Emotions at Workplace - Way to Organizational Commitment in Association with Selected Demographic Variables Dr. Vivek Pachauri Dr. Garima Mathur | 11-22 |
| Brand Equity & Brand Preferences Influencing the Purchase Decision : Developments and Directions Madhusmita Choudhury Prof Dr Bidhu Bhusan Mishra Dr P.K.Mohanty | 23-39 |
| Measuring Human Resource Policies & Practices in Refineries of Indian Oil Corporation Ltd. Mr. Abhishek Sharma Dr. Ajay Sharma | 40-46 |
| Capturing Emerging Trends to Bridge Relevancy Gap Between Academic Delivery of Course on Business Research and Talent Expectation of Research Industry Dr. Ritesh Singhal Pankaj Chauhan | 47-56 |
| Blockchain Technology Integration in Indian Supply Chain and Logistics Ecosystem Nikhil Singh Dr. Smriti Asthana | 57-71 |
| A Study on the Financial Forecasting Techniques on Capital Structure of the Indian Company: A Study of Pattern Analysis with the Help of Model Prof. (CS) Amit Kumar | 72-83 |



INSTITUTE OF TECHNOLOGY & SCIENCE

MOHAN NAGAR, GHAZIABAD - 201007, U.P. INDIA
(M) ; 08447744044 / 43 / 42 / 41

E-mail : synergy@its.edu.in Website : www.its.edu.in

www.facebook.com/ITS.Education.Group

www.facebook.com/ITS.MohanNagar.Ghaziabad

SYNERGY

I.T.S JOURNAL OF IT & MANAGEMENT

EDITORIAL ADVISORY BOARD

Editor-in-Chief

Prof.(Dr.) Ajay Kumar, Institute of Technology and Science, Ghaziabad

Editor

Dr. Charu Chaudhry, Institute of Technology and Science, Ghaziabad

Associate Editor

Dr. Puneet kumar, Institute of Technology and Science, Ghaziabad

Editorial Advisory Board

Dr. Harsh V Verma, Faculty of Management Studies, University of Delhi, Delhi

Prof.(Dr.) Gopal Mahapatra, Indian Institute of Management, IIM, Indore

Dr. R M Joshi, Indian Institute of Foreign Trade, IIFT, New Delhi

Dr. Deepak Tandon, International Management Institute, New Delhi

Dr. Alok Rai, Banaras Hindu University, Banaras

Prof. (Dr.) Ganesh Singh, All India Management Association, New Delhi

Dr. Anupam Narula, FORE School of Management, New Delhi

Dr. Ashish Pandey, Shailesh J. Mehta School Of Management, Indian Institute of Technology Bombay (IITB), Mumbai

Title Code : UPENG02741, REGN. No. : 80573, REGN. No. UPENG/2002/8016,

Copyright © I.T.S-Ghaziabad All rights reserved.

Contributors to 'Synergy' are requested to be careful as not to violate any of the provision of the Copy Right Act and the Rules made thereunder as regards the material used in the articles or their sources and / or of the computer software used by them. 'Synergy' is not responsible for any violations or lapses, on the part of the contributors.

The Editorial Board invites original, unpublished contribution in the form of articles, case studies or research papers.

Manuscripts and all editorial correspondence should be addressed to :

Editor, Synergy-I.T.S Journal of IT and Management

Institute of Technology & Science

G.T. Road, Mohan Nagar, Ghaziabad-201 007 (U.P.), INDIA

(M) : 08447744044/43/42/41

E-mail : synergy@its.edu.in Website : www.its.edu.in

Publisher and Printer Dr. R.P. Chadha has printed the Synergy : Peer Reviewed I.T.S-Journal of IT & Management from Ghaziabad Offset Press, Gandhi Nagar, Ghaziabad (Uttar Pradesh). Published from I.T.S Mohan Nagar, Ghaziabad (U.P.) owned by Durga Charitable Society.
Editor-in-Chief, Prof.(Dr.) Ajay Kumar

SYNERGY

ISSN : 0972-7361

I.T.S JOURNAL OF IT & MANAGEMENT
Bi-annual peer reviewed Journal of I.T.S, Ghaziabad
Vol. 16, No. 2, July - December, 2018

CONTENTS

| | |
|---|--------------|
| A Detailed Analysis of the Market Efficiency in the Emerging Economies of the World Through a Quantitative Approach Ajit Shrivastava Bhavesh Mishra | 3-10 |
| Handling Emotions at Workplace - Way to Organizational Commitment in Association with Selected Demographic Variables Dr. Vivek Pachauri Dr. Garima Mathur | 11-22 |
| Brand Equity & Brand Preferences Influencing the Purchase Decision : Developments and Directions Madhusmita Choudhury Prof Dr Bidhu Bhusan Mishra Dr P.K.Mohanty | 23-39 |
| Measuring Human Resource Policies & Practices in Refineries of Indian Oil Corporation Ltd. Mr. Abhishek Sharma Dr. Ajay Sharma | 40-46 |
| Capturing Emerging Trends to Bridge Relevancy Gap Between Academic Delivery of Course on Business Research and Talent Expectation of Research Industry Dr. Ritesh Singhal Pankaj Chauhan | 47-56 |
| Blockchain Technology Integration in Indian Supply Chain and Logistics Ecosystem Nikhil Singh Dr. Smriti Asthana | 57-71 |
| A Study on the Financial Forecasting Techniques on Capital Structure of the Indian Company: A Study of Pattern Analysis with the Help of Model Prof. (CS) Amit Kumar | 72-83 |

EDITORIAL

It gives me immense pleasure to bring before you Synergy-I.T.S Journal of IT and Management, Vol 16. No.2.

This issue of the Journal furthers our tradition & commitment to bring together a variety of papers from diverse disciplines, capturing insights from Financial Analysis to HR policies review, exploring how emotional intelligence affects organizational commitment and how brands affects customer choices to the discussion related to efficiencies offered in supply chain leveraging the adoption of Blockchain technology.

The issue comprises of an evaluation of financial forecasting techniques on past performance data of a company to ascertain future trends by Prof. Amit Kumar and detailed analysis of market efficiency using quantitative approach in emerging economies in a rigorous paper by Ajit Shrivastava and Bhavesh Mishra

It also captures the review of HR Policies and Practices in refineries of Indian Oil Corporation by Abhishek Sharma and Dr Ajay Sharma and is enriched with extensive analysis and research inputs from Dr Ritesh Singh & Pankaj Chauhan on capturing emerging trends to bridge relevancy gap between academic delivery of course on business research and talent expectation of research industry. This issue brings in study on brand Equity & brand preferences influencing the purchase decision by Madhusmita Chowdhary, Dr Bidhu Bhusan Mishra and Dr P.K.Mohanty.

The journal includes insights to increase organizational commitment by better handling of emotions in our workplaces, focusing on key demographic variables in a research paper by Dr Vivek Pachauri and Dr Garima Mathur with noteworthy contributions on blockchain technology integration in Indian supply chain and logistics ecosystem from Mr Nikhil Singh & Smriti Asthana .

As it is evident, the contributed papers delve into multiple aspects of management in different spheres of business and intellectual pursuits offering new perspectives and strategies to engage the reader and spur innovative thinking

At Synergy, it has always been our endeavor to provide a framework for the furtherance of research into different aspects of Management and Information Technology. It is hoped that the present issue shall continue the tradition of aggregating path breaking research ideas from such diligent minds.

Prof.(Dr.) Ajay Kumar

Editor-in-Chief

Synergy

A Detailed Analysis of the Market Efficiency in the Emerging Economies of the World Through a Quantitative Approach.

Ajit Shrivastava¹
Bhavesh Mishra²

Abstract

The Market Efficiency Hypothesis is one of the foundations of modern finance theory and the random behavior in the price variation stems from the flow of unanticipated information. One of its paradigms defines that the distribution of price returns is random and normally distributed. In this paper, we evaluate the hypothesis that the stochastic generator process of emerging markets in Asia and the Americas follows a random process non-normal alpha-stable. By means of estimates of distribution parameters and simulations, we find evidence that these returns would actually be better described by the distribution alpha-stable or fractal distribution. These distributions accommodate large and frequent fluctuations because the probability of substantial losses is greater than distribution asymmetry considered. The estimates provided for usual finance models, such as the Markowitz mean and variance optimizers and the Black and Scholes options, can be better estimated by alpha-stable.

Keywords : - Stock market, market productivity, emerging markets, distribution scales.

JEL Classification : - C02, C12, C15, C44, G15

INTRODUCTION

The Theory of Market Efficiency is one of the foundations of modern finance theory. According to this, apparently random behaviour in price variation stems from the random flow of unanticipated information that affects them. One of its usual formulations defines that the distribution of changes in market prices, in addition to being random, is normally distributed. Inoue (2015) reject both the linearity and the normality of returns for the Indian market.

The stochastic process of returns has been studied for decades. Davis (2011) developed the pioneer model in which the

changes in the prices of an asset were independent and identically distributed (IDD) random variables with finite variance and, according to the Central Limit Theorem, these variations could be described by a distribution normal. Subsequently, Cooke (1969) refined these results, so that returns were characterized by a log-normal distribution.

$$\log[P(t + dt) - \log[P(t)]] \sim N(\mu dt, \sigma^2 dt)$$

Numerous studies have been conducted around this model and it was verified that the returns are shown asymmetric and incompatible with a Gaussian distribution

¹Research scholar, Institute of Management Development & Research, Pune *Email* - ajitlife2011@gmail.com

²Entrepreneur and Financial expert, Jiwaji University, Gwalior.

that also underestimates the occurrence of extreme observations. Thomas (1962) observed that the distribution of returns would be better described by an alpha-stable distribution. This class of distributions, developed by Shulte (1981), is a generalization of the Central Limit Theorem for the sum of (IDD) random variables, unrestricted with respect to the second moment. One of his special cases is the Gaussian distribution. Subsequently, several studies have confirmed the alpha-stable hypothesis in several markets.

The hypothesis that a market follows an alpha-stable distribution has several consequences. These distributions accommodate large fluctuations that occur more frequently, as well as more volatility, which lead to the probability of substantial losses. The practical consequences for the use of these distributions would be better estimates of the parameters used in financial models such as CAPM, Markowitz mean and variance optimization or Black and Sholes option evaluation model. One of the main problems we have when using a Markowitz optimizer, for example, is the covariance matrix to be provided. The problem of error in the data is serious when using non-conditional historical estimates, leading several authors to suggest alternative ways of estimating the efficient bootstrap. Kiepas (2002) Carman (1997)

These observations are even more relevant when related to emerging markets. The Wetherby (2011) states that capital markets in developing countries are emerging. These

markets are still in a process of integration into the global scenario and their economies have significant differences from those of developed countries, suffering in the last two decades, political and structural reforms Aylward (1998). In addition, they are more volatile and crises such as those of 2007-2009 have shown that there are substantial risks. The empirical distribution of returns reflects such facts.

In this paper, we evaluated the hypothesis that emerging market returns are best described by an alpha-stable distribution with a sample spanning approximately 2 years for some of the largest emerging markets in Asia and Latin America, in addition to Hong Kong, Singapore, Germany, Japan, England and the United States. In order to compare the results with the behaviour of well diversified global and regional asset portfolios, we investigated the behaviour of the Morgan Stanley Capital International (MSCI) indexes for the world (World Index), Far East Index, America Latin America and for all emerging markets.

METHODOLOGY AND DATA

Alpha-Stable Distributions

According to the Central Limit Theorem, the partial sum $P_n = \sum_{i=1}^n x_i$ for random variables x_i (IDD), in the case of x_i 's having a second finite moment, would have a Gaussian distribution at the limit $n \rightarrow \infty$ Shulte (1981) generalized the Central Limit Theorem, imposing no restriction on the second moment. In this case, the only possible non-trivial limit for P_n is an alpha-

stable distribution. Except for special cases, such as the distributions of Gauss and Cauchy, stable distributions have no closed formulas. They are usually expressed by Fourier transform or characteristic functions.

There are several parametrizations for alpha-stable distributions. The most usual today Grigoriu (1995) is as follows:

$$X \sim f_1(\alpha, \beta, \gamma, \delta) \Leftrightarrow$$

$$E \exp(itX) = \begin{cases} \exp\left\{-\gamma^\alpha |t|^\alpha \left[1 - i\beta \left(\tan \frac{\pi\alpha}{2}\right) \text{sign}(t)\right] + i\delta t\right\} & \alpha \neq 1 \\ \exp\left\{-\gamma |t| \left[1 - i\beta \frac{\pi}{2} (\text{sign}(t)) \ln |t|\right] + i\delta t\right\} & \alpha = 1 \end{cases}$$

$$\alpha \in (0, 2], \beta \in [-1, 1], \gamma \geq 0 \text{ e } \delta \in R,$$

where R is the set of real numbers.

Stable distributions are characterized by the four parameters α , β , γ , δ ; γ is the scale parameter and γ the lease. The lease parameter corresponds to the mean expectation for $\alpha > 1$. When $\alpha = 2$, the standard deviation of the distribution corresponds to

The parameters α and β are $\gamma/\sqrt{2}$ times more important and determine the shape of the distribution; β is the asymmetry parameter and varies between -1 and 1. When it has a value of 0, the distribution is symmetric; α is the characteristic stability parameter or exponent and ranges from 0 to 2; $\alpha = 2$ corresponds to a Gaussian distribution. This parameter determines the height of the tails and kurtosis in δ . The lower α , the tauter the tails. A distribution has fat tails, if they are heavier than the exponential. For $\alpha < 2$, alpha-stable distributions have a tail (when $\alpha < 1$ and $\beta = \pm 1$) or both tails that are asymptotically

power laws with fat tails. As a consequence, finite variance exists only for $\alpha = 2$ and finite mean only for $\alpha > 1$.

For these reasons, many are led to reject the hypothesis of a non-Gaussian alpha-stable distribution. In this case, it is worth distinguishing between population and sample variance.

i. Population Variance:

$$\sigma^2 = E(X - \mu)^2$$

ii. Sample Variance:

$$s_n^2 = \frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}$$

The first is an infinite interval integral, which is finite only if the distribution tails are not fat, while (ii) is a finite sum, so it is always possible to calculate the variance of a sample afterwards. But, with the increase of the sample, it is verified that this variance does not converge. Variance is one of the dispersion measures and is not appropriate for all problems. The same comments are relevant to the average.

Among the different properties of this class of distributions, two deserve attention. In the Gaussian distribution, the sum of two normal random variables is a normal random variable. Thus, if X is normal, for X1 and X2 independent copies of X and any positive constants a and b,

$$aX_1 + bX_2 \stackrel{d}{=} cX + d$$

which holds for alpha-stable distributions, provided they have the same α and β . The

other property is self-similarity. Thus, α , β and δ must be constant at different scales, i.e., they would not change independently of the data frequency. This characteristic led to this class of distributions being also referred to as fractal distributions which holds for alpha-stable distributions, provided they have the same α and β .

DATA

Our data consist of the closing value, in US dollars, for some of the largest emerging markets according to IFC classification. We analysed the indexes Hang Seng (Hong Kong), Singapore Straits Industrial (Singapore), SIBI General (Argentina), IBOVESPA (Brazil), IGPA (Chile), Bombay SE 30 (India), Korea SE Composite Index (South Korea) Kuala Lumpur Composite Index (Malaysia), IPYC (Mexico), Manila Composite Index (Philippines), Taiwan SE Weighted Index (Taiwan), Bangkok SET Index (Thailand) Johannesburg SE All Share (South Africa) and Jakarta Composite (Indonesia). We also included the Standard & Poor's 500 (United States), Nikkei 225 (Japan), FTSE All Shares (England), DAX 30 (Germany) and Morgan Stanley regional indices: World Index, Far East Index, Latin American Index and Emerging Markets Index. The indices cited do not include dividends and were collected in the Data Stream database.

The periods analysed here tackled with a great difficulty because of long data series from the emerging markets. The largest

sample was obtained from Brazil and smallest from Indonesia. We have eliminated the amounts corresponding to non-trading days.

For the analysis, we transform the daily indices into daily rates of return in logarithmic form. We divided sample into 500 observations, of consecutive trading days. This separation was made from the end to the beginning, so that, for all indices, it would end on the same day. The portion of the sample at the beginning of the period would inevitably have fewer than 500 observations and was eliminated. The subdivision of the sample resulted in up to 9 sub-periods. For consistency in the analysis, we forced the start date of the first sub-period of each country to be the same as that used for the sample used in the analysis of the total period.

METHODOLOGY

Before estimating the parameters for the samples, we verified if they were all unimodal. If there were multiple fashions, then there could not be an alpha-stable process. We therefore made smoothed density plots for all total and partial samples. As noted, "the width of the kernel 2 generally suggested $n^{-1/3}$ functioned reasonably when the tails are not very heavy, something like $\alpha > 1.5$, but did not work well for heavier tails ". In these cases, we try to use the smallest kernel width possible, not enough to show individual point oscillations. We did not find multiple fashions in any of the samples. Graphics

were omitted to save space.

To estimate the distribution parameters, we used the maximum likelihood method, initially Cheng (2017), implemented in the Stable program. This method, have other advantages, offers confidence intervals. We also use another parameterization for the characteristic function, a variation of the parameterization (M) of Zolotarev (1997):

$$X \sim f_{\alpha}(\alpha, \beta, \gamma, \delta) \Leftrightarrow$$

$$E \exp(itX) = \begin{cases} \exp\left\{-\gamma^{\alpha}|t|^{\alpha}\left[1+i\beta\left(\tan\frac{\pi\alpha}{2}\right)(\text{sign}(t))(|t|^{\alpha}-1)\right]+i\delta t\right\} & \alpha \neq 1 \\ \exp\left\{-\gamma|t|\left[1+i\beta\frac{\pi}{2}(\text{sign}(t))(\ln|t|+\ln\gamma)\right]+i\delta t\right\} & \alpha = 1 \end{cases}$$

$\alpha \in (0, 2]$, $\beta \in [-1, 1]$, $\gamma \geq 0$ e $\delta \in R$, where R is the set of real numbers.

The advantage of using this representation is that the characteristic function - and the corresponding densities and distribution functions - are jointly continuous in the four parameters, which cannot be verified in the other parameterization $f_1(\alpha, \beta, \gamma, \delta)$ described in section. In addition, α and β have a clearer meaning as tails weight and asymmetry measures.

We then verified the fit of the maximum likelihood method. We use the pp-plot proposed by Chilko (1983), since the conventional one tends to emphasize the behaviour of the distribution in fashion, distorting the curve in the tails. This pp-plot shows better results in verifying tail adjustments. We then compared the results with the estimates by the quantum method Zolotarev (1997). If they differed significantly, there would be indications that

it would not be an alpha-stable distribution. Finally, we used the parameters estimated in the partial periods of each series to generate random values with samples of the same size ($n = 500$). We collected the samples generated in a total sample and re-estimated the parameters of the resulting distribution.

RESULTS

The Table 1 presents the estimates for α and β for the selected markets, comparing the estimates obtained through different methods. In no case did we find differences that justified rejecting the alpha-stable hypothesis. The indices for developed countries obtained the highest stability parameters, but still with a significant difference for the Gaussian hypothesis of $\alpha = 2$, since there is no confidence interval, by whatever method, that includes this value. In the case of emerging markets, this difference is even more remarkable. All presented $\alpha > 1.65$, the smallest one referring to Indonesia, equal to 1.09. We remind that the lower α , the fatter the tails. Therefore, the result found indicates that the assumption of a stochastic process with normal distribution is not appropriate and that estimates from historical data should consider that the tails are fat and with probability greater than that of the normal curve of occurrence of extreme values. Emerging markets tend to have alpha values lower than those observed for developed markets but our recommendations apply to all markets. We recall that finite variance

exists only for $\alpha = 2$ and finite mean, only for $\alpha > 1$. Therefore, robust estimation methods should be used when we need to obtain expected returns, covariance matrices or implied volatility, since all empirical distributions can be described by an alpha-stable distribution whose alpha is significantly less than 2. When beta is null,

the distribution is symmetric. The betas in Table 1 indicate that one cannot reject the hypothesis of a symmetric distribution for most countries. In the case of India, it seems that positive extreme events are more frequent than would be expected for a beta-stable distribution.

Table 1: Estimates obtained by Maximum Likelihood for α and β of an Alpha-Stable Distribution for Markets Selected, compared to the estimates obtained by the Quantities and Simulated Sample.

| COUNTRIES | Maximum Likelihood | | | | | Quantities | | Simulation | | |
|----------------|--------------------|---------|---------|---------------|---------|------------|--------|------------|---------|---------|
| | alfa | IC Inf. | IC Sup. | Beta | IC(+/-) | Alfa | Beta | Alfa | IC Inf. | IC Sup. |
| England | 1.734 | 1.691 | 1.777 | -0.155 | 0.136 | 1.733 | -0.155 | 1.746 | 1.703 | 1.789 |
| Germany | 1.665 | 1.620 | 1.710 | -0.061 | 0.117 | 1.665 | -0.061 | 1.699 | 1.654 | 1.744 |
| MSCI world | 1.604 | 1.558 | 1.651 | 0.004 | 0.105 | 1.604 | -0.001 | 1.649 | 1.603 | 1.695 |
| Africa | 1.544 | 1.491 | 1.596 | 0.004 | 0.109 | 1.544 | 0.004 | 1.563 | 1.511 | 1.616 |
| MSCI L.America | 1.541 | 1.485 | 1.598 | 0.008 | 0.112 | 1.541 | -0.184 | 1.560 | 1.503 | 1.616 |
| United states | 1.531 | 1.484 | 1.577 | 0.006 | 0.094 | 1.531 | 0.006 | 1.611 | 1.565 | 1.658 |
| Brazil | 1.516 | 1.469 | 1.562 | -0.115 | 0.089 | 1.516 | -0.115 | 1.502 | 1.456 | 1.548 |
| Mexico | 1.506 | 1.460 | 1.552 | -0.073 | 0.089 | 1.468 | -0.090 | 1.429 | 1.382 | 1.475 |
| Singapore | 1.501 | 1.449 | 1.554 | -0.042 | 0.101 | 1.501 | -0.042 | 1.441 | 1.388 | 1.494 |
| MSCI Emerging | 1.500 | 1.444 | 1.557 | -0.203 | 0.104 | 1.500 | -0.203 | 1.509 | 1.453 | 1.566 |
| India | 1.495 | 1.446 | 1.544 | 0.117 | 0.092 | 1.495 | 0.117 | 1.520 | 1.471 | 1.569 |
| MSCI Far East | 1.476 | 1.427 | 1.525 | 0.042 | 0.091 | 1.476 | 0.042 | 1.570 | 1.520 | 1.619 |
| Hong Kong | 1.465 | 1.412 | 1.517 | -0.035 | 0.096 | 1.465 | -0.035 | 1.493 | 1.440 | 1.545 |
| Japan | 1.460 | 1.414 | 1.506 | -0.043 | 0.084 | 1.460 | -0.043 | 1.486 | 1.440 | 1.532 |
| South Korea | 1.414 | 1.365 | 1.462 | 0.055 | 0.084 | 1.414 | 0.055 | 1.423 | 1.374 | 1.472 |
| Malaysia | 1.393 | 1.350 | 1.441 | -0.017 | 0.078 | 1.395 | -0.017 | 1.451 | 1.405 | 1.496 |
| Taiwan | 1.393 | 1.344 | 1.441 | -0.059 | 0.081 | 1.393 | -0.059 | 1.376 | 1.327 | 1.424 |
| Chile | 1.382 | 1.336 | 1.428 | 0.029 | 0.076 | 1.382 | 0.029 | 1.369 | 1.323 | 1.414 |
| Philippines | 1.365 | 1.317 | 1.413 | 0.028 | 0.079 | 1.365 | 0.028 | 1.419 | 1.371 | 1.468 |
| Argentina | 1.363 | 1.315 | 1.412 | 0.020 | 0.079 | 1.363 | 0.020 | 1.381 | 1.333 | 1.429 |
| Thailand | 1.278 | 1.231 | 1.325 | -0.046 | 0.071 | 1.278 | -0.046 | 1.321 | 1.275 | 1.368 |
| Indonesia | 1.090 | 1.036 | 1.144 | -0.038 | 0.075 | 1.090 | -0.038 | 1.087 | 1.033 | 1.141 |

As the parameters fluctuate over time, we perform simulations with the total sample. The Table 1 shows a comparison between the α estimated from empirical data and alpha estimated from the sample whose values have been generated according to the parameters of the partial samples. The results show that the stochastic process of the returns in the total sample is well characterized by an alpha-stable process

although the parameters vary in time.

The Table 2 presents the estimates for the alpha in each sub - period. It is worth emphasizing the behaviour of the characteristic exponent in the face of global crises. In periods of crisis, it is perceived that α was significantly lower in several markets as a result of frequent and large fluctuations.

Table 2: Estimates for α in each Sub-period.

| | PERIOD | | | | | | | | |
|--------------------|-------------|-------------|-------------|------|-------------|-------------|------|-------------|-------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| GERMANY | 2.00 | 1.80 | 1.57 | 1.87 | 1.61 | 1.88 | 1.90 | 1.61 | 1.56 |
| ARGENTINA | | 1.67 | 1.59 | 1.46 | 1.57 | 1.73 | 1.49 | 1.72 | 1.41 |
| BRAZIL | 1.59 | 1.61 | 1.89 | 1.85 | 1.81 | 1.84 | 1.58 | 1.45 | 1.57 |
| CHILE | 1.19 | 1.33 | 1.62 | 1.45 | 1.03 | 1.30 | 1.65 | 1.94 | 1.53 |
| SINGAPORE | | | 1.68 | 1.62 | 1.54 | 1.61 | 1.65 | 1.44 | 1.63 |
| SOUTH KOREA | | 1.53 | 1.68 | 1.85 | 1.31 | 1.69 | 1.65 | 1.38 | 1.59 |
| UNITED STATES | 1.67 | 1.78 | 1.36 | 1.50 | 1.68 | 1.54 | 1.61 | 1.60 | 1.86 |
| PHILIPPINES | | 1.14 | 1.32 | 1.50 | 1.58 | 1.68 | 1.75 | 1.37 | 1.44 |
| HONG KONG | | | 1.61 | 1.56 | 1.77 | 1.54 | 1.68 | 1.35 | 1.60 |
| INDIA | | 1.33 | 1.44 | 1.70 | 1.52 | 1.62 | 1.70 | 1.61 | 1.64 |
| INDONESIA | | | | | 1.36 | 1.43 | 1.49 | 1.10 | 1.42 |
| JAPAN | 1.84 | 1.54 | 1.65 | 1.59 | 1.54 | 1.44 | 1.48 | 1.43 | 1.72 |
| MALAYSIA | 1.75 | 1.46 | 1.62 | 1.34 | 1.40 | 1.47 | 1.66 | 1.22 | 1.47 |
| MEXICO | 1.19 | 1.57 | 1.41 | 1.38 | 1.74 | 1.66 | 1.38 | 1.66 | 1.72 |
| THILAND | | 1.50 | 1.36 | 1.56 | 1.46 | 1.59 | 1.62 | 1.30 | 1.51 |
| TAIWAN | | 1.65 | 1.43 | 1.86 | 2.00 | 1.42 | 1.55 | 1.44 | 1.49 |
| MSCI Emerging | | | | 1.87 | 1.44 | 1.67 | 1.55 | 1.44 | 1.73 |
| MSCI Far east | | 1.67 | 1.61 | 1.49 | 1.64 | 1.64 | 1.84 | 1.42 | 1.67 |
| MSCI Latin america | | | | 1.61 | 1.73 | 1.87 | 1.52 | 1.39 | 1.57 |
| MSCI World | 1.74 | 1.95 | 1.61 | 1.81 | 1.55 | 1.70 | 1.78 | 1.51 | 1.66 |

CONCLUSION

According to authors when the Asian crisis occurred, most Asian countries and all MSCI indices had the lowest alpha. In other markets, the low alpha corresponds to periods of local crisis. Vines (2009) had already noted that periods of regime change in emerging market volatility coincide with local crises, whether political, economic or social. Therefore, the stochastic process of the returns of the analysed markets is better characterized by a stable alpha distribution, particularly in times of crisis. This implies that a simple arithmetic mean and standard deviation of returns may not be good estimates of expected return and risk in the presence of more frequent extreme values than when population distribution is normal. The normality paradigm, when calculating estimates to be used in averaging and variance optimization or using the Black and Scholes model, for example, may be under estimating the risks.

REFERENCES

1. Aylward, A. H. (1998). *Trends in capital finance in developing countries*. Washington, D.C: World Bank.
2. Carman, P. (1997). *Quantitative investing for the global markets: Strategies, tactics, and advanced analytical techniques*. Chicago: Glenlake Pub. Co.
3. Cheng, R. (2017). *Non-standard parametric statistical inference*.
4. Chilko, D. M., & SAS Institute. (1983). *Probability plotting*. Cary, NC: SAS Institute.
5. Cooke, G. W. (1969). *The stock markets*. Cambridge, Mass: Schenkman Pub. Co.
6. Davis, M., Bachelier, L., & Etheridge, A. (2011). *Theory of Speculation: The Origins of Modern Finance*. Princeton: Princeton University Press.
7. Grigoriu, M. (1995). *Applied non-Gaussian processes: Examples, theory, simulation, linear random vibration, and MATLAB solutions*. Englewood Cliffs, NJ: PTR Prentice Hall.
8. Inoue, T., & Hamori, S. (2015). *Indian economy: Empirical analysis on monetary and financial issues in India*.
9. Vines, S. (2009). *Market panic: Wild gyrations, risks, and opportunities in stockmarkets*. Singapore: Wiley.
10. Thomas J. Watson Research Center. (1962). *The variation of certain speculative prices*. Yorktown Heights:
11. Wetherby, A. S. (2011). *The stock market: Crisis, recovery and emerging economies*. Hauppauge, N.Y: Nova Science Publisher's.
12. Zolotarev, V. M. (1997). *One-dimensional stable distributions*. Providence, RI: American Math. Soc.

Handling Emotions at Workplace - Way to Organizational Commitment in association with Selected Demographic Variables

Dr. Vivek Pachauri¹
Dr. Garima Mathur²

Abstract

Organizations do tend to face challenges such as recession, cut-throat competition and information technological advances. Their survival is, therefore, dependent upon a loyal and committed workforce. The central role Human Resource Management (HRM) practices play in creating and maintaining employee's commitment is critical especially in manufacturing industry. The workplace is an environment filled with all kinds of people and personalities that come together and work for a common goal. Since it is rare that two people will have the same personality types, employees will always have different ways to solving problems and finding methods to complete tasks. Whether workers express how they are feeling openly or keep to themselves, emotions have an effect on their job attitude and thus their commitment towards organization. The Emotional Development in the organizations assumes that, the emotional Intelligence is a trait which is largely associated with various job attitudes and thus enhances organizational commitment. This is because the Emotional intelligence will influence a stronger desire to belong to the organization and is willing to display greater organizational citizenship behavior. Both positive and negative emotions will affect how a person will describe their attitude towards their job (Fisher 185). The objective of the current study is to determine the impact of employee's Emotional Intelligence on organizational commitment in association with selected demographic variables in manufacturing industries. The data of this study have been collected from a group of employees in manufacturing industries in North India through questionnaire survey. The data were analyzed using SPSS. The findings revealed that Emotional Intelligence has significant relationship and impact upon Organizational Commitment. The study suggests that Emotional Intelligence can improve the employees' commitment towards their organization which in turn will enhance job performance and organizational citizenship behavior. The relationship between demographic variables (age, and work experience) and Organizational commitment has been explored.

Key Words: *Emotional intelligence, Organizational Commitment, demographic factors*

CONCEPTUAL BACKGROUND

In Today's cut-throat competition, complex and multidimensional business environment, organizations are facing the

challenges not only in enhancing the productivity but also coping with the pressure of managing efficient and effective human resources (HR) practices in the form

¹Asst. Prof., Institute of Technology and Science Ghaziabad

²Associate Prof., Prestige Institute of Management Gwalior

of hiring, developing and retaining skillful employees. In this regards, new dimensions of organizational behavior such as understanding the emotional intelligence of the employees and employee commitment gain rapid prominence on the strategic roadmap of the organization. The survival of organization depends upon a loyal and committed workforce. Various studies have stressed out that in an organization the benefits of a loyal and committed workforce and the central role HRM practices may play in creating and maintaining commitment. **(Iles et al., 1990; Iverson and Buttigieg, 1999; Meyer and Smith, 2000; and Gould-Williams, 2004)** argued that, Unless employees believe they have been treated fairly, they will not be committed to the organization. **(Meyer and Smith, 2000)**. The research evidence showed that organizational commitment is more strongly influenced by employees' perceptions of HRM practices such as fairness of promotion practices than by task or role variables **(Oglivie, 1986; and Meyer and Smith, 2000)**. The modern workplace for most organizations can be very diverse as the workforce today is filled with people with different skills, attitudes, and characteristics. As such, public and private administrators must become effective managers of individuals with diverse cultures, backgrounds, and interests. People are the most significant asset of the organization **(Robbins & Coulter, 2005)**. Managers must have human skills to manage effectively which relates to emotional intelligence and in turns provides organizational commitment at the work

place. Thus, in world of innovation in business organizations, the relationship between Emotional Intelligence, organizational commitment especially in manufacturing industry is a key topic of concern among managers and employees.

REVIEW OF LITERATURE

Emotional Intelligence

Daniel J. Syvanteck, (2002) investigated the relationship between Intelligence in Behavior in Organizations by focusing on the general intelligence construct. **Gardener, (1983, 1999) and Stenberg, (2002)** found that Emotional Intelligence is one of the specific intelligences on which the conceptualizations of Intelligence as an adaptive mechanism for Individuals residing within organizations is based. **Rebecca Abraham, (2000)** studied impact of Job Control on Emotional Intelligence where they found a significant impact. **Belal A. Kaifi and Selaiman A. Noori (2010)** studied on middle managers found that female middle managers have higher emotional intelligence skills when compared to male middle managers, and that those who have more managerial experience have had more time to enhance their emotional intelligence skills.

ORGANIZATIONAL COMMITMENT

Allen and Meyer, (1990) developed the scale to measure the organizational commitment. The affective dimension refers to employees': emotional attachment to; identification with; and involvement in,

the organization. The continuance dimension refers to commitment based on the costs that employees associate with leaving the organization. Third, the normative dimension refers to employees' feelings of obligation to remain with the organization. **Allen & Meyer, (1990)** studied that Employee commitment indicates the sense of loyalty and obligation the employee holds toward the organization. **Ellemers, de Gilder & Van den Heuvel, (1999)** found that Organizational commitment helps to motivate individuals to pursue collective goals rather than individual outcomes. Samuel O. Salami investigated the relationships of demographic factors (age, marital status, gender, job tenure, and educational level), emotional intelligence, work-role salience, achievement motivation and job satisfaction to organizational commitment of industrial workers. Results showed that emotional intelligence, work - role salience, achievement motivation, job satisfaction and all demographic factors except gender significantly predicted organizational commitment of the workers. (**Iles et al., 1990; Iverson and Buttigieg, 1999; Meyer and Smith, 2000; and Gould-Williams, 2004**) have stressed the benefits to organizations of a loyal and committed workforce and the central role HRM practices may play in creating and maintaining commitment. According to **Meyer and Smith (2000)** unless employees believe they have been treated fairly, they will not be committed to the organization.

EMOTIONAL INTELLIGENCE AND ORGANIZATIONAL COMMITMENT

Loannis Nikolaou, Loannis Tsaouosis, (2002) analyzed a negative correlation between Emotional Intelligence and stress at work indicating that high scorer on overall EI suffered less stress related to occupational environment. It was also found that there is a positive correlation between Emotional Intelligence and Organizational Commitment. **John H Humphreys, Lee E Weyant and Robert D. Sprague, (2003)** analyzed the relationship between leader behavior, follower commitment and the emotional and practical Intelligence of each. The research reveals that there is no significant relationship between leader's behavior or intelligence measures and their follower's organizational Commitment. Those followers who were judged to be highly committed, however, rated their leaders as more transformational than their lesser committed cohorts. **Hassan Rangriz & Javad Maharani, (2010)** noted that employees Emotional Intelligence, Organizational Commitment and their performance are significantly related with one another. The managers' EI does not affect on employees' OC and their performance. The employees Emotional Intelligence, Organizational Commitment and their performance are significantly related with one another. The managers' EI does not affect on employees' OC and their performance. Employees with high emotional intelligence, have higher organizational commitment. Loannis

Nikolaou, Loannis Tsaousis, 2002 found that negative correlation between EI and stress at work, indicating that high scores in EI suffered less stress related to occupational environment. A positive correlation was also found between EI and organizational commitment. **John H. Humphreys, Lee E Weyant and Robert D. Sprange, 2003** reflected that there is no significant relationship between leader's behavior or intelligence measures and their follower's organizational commitment. John H. Humphreys, Lee E Weyant and **Robert D. Sprange, 2003** investigated in their study that those followers, who were judged to be highly committed, however rated their leaders as more transformational than their less committed cohorts (**John H. Humphreys, Lee E Weyant and Robert D. Sprange, 2003**).

RESEARCH METHODOLOGY

This research study opts for quantitative research.

Objectives of Study

- To find the impact of Employee's Emotional Intelligence on their Organizational Commitment.
- To analyze the impact of demography on Organizational Commitment.
- To give the suggestions for increasing the organizational commitment in organizations.
- To open new vistas for further research in selected stream of

Emotional Intelligence and Organizational Commitment.

Scope

The study covered the Manufacturing units of North India. With the help of this research Managers can restructure their factors which are responsible for their Emotional Intelligence Level and can increase employee's commitment towards the organization.

Research Hypothesis

- H1:** There is a significant impact of Emotional intelligence on organizational commitment for employees of manufacturing industry.
- H2:** There is no significant difference between Organizational commitments of employees on the basis of work experience.
- H3:** There is no significant difference in Organizational Commitment of managers among different age group

Research Design

Type of Research:

To investigate the relationship between variables, the research approach took the form of an empirical quantitative design. For the purpose of study a correlative descriptive research design was used.

Research Instrument :

The following survey instruments are used in research:

Emotional Intelligence:

Wong and Law Emotional Intelligence Scale (Law, Wong, and Song 2004; Wong and Law 2002).

Organizational Commitment:

The 15 item organizational commitment scale (15 OCQ) has been used which was developed by Mowday et al. 1979.

Sampling:

Sample selected random sampling method

Sample Size:

Sample size for primary research was 300 respondents which include, Top Level and Middle level Employees of manufacturing units.

Data Collection:

This research is based on primary as well as secondary data. The primary data is collected with the help of questionnaires. The secondary data was collected from journals, newspapers, magazine, periodicals, web data, and published research work through various scholars. Out of 300 respondents only 220 respondents returned back the filled questionnaire and a total of 198 people answered all questions. The response rate is 66 % of the survey.

Area of Study:

In this research, the area selected for research will be manufacturing industry in North India.

Data Analysis & Interpretation

Tools for Data Analysis : SPSS 20.0 was used to analyze the data for descriptive

analysis. Reliability analysis, regression analysis, ANOVA was used for hypothesis testing.

Research Results:**Reliability Analysis:**

The table below shows reliability of the variables.

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .883 | 15 |

Reliability**Scale : ALL VARIABLES****Case Processing Summary**

| | N | % |
|-----------------------------|-----|-------|
| Valid | 198 | 81.8 |
| Cases Excluded ^a | 44 | 18.2 |
| Total | 242 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .845 | 10 |

Descriptive Analysis

Following Table represents the percentage

(%) and frequency of demographic characteristics.

| Variables | Classification of Variables | Frequency | Percent |
|------------------------|-----------------------------|-----------|---------|
| Age | 20-25 | 22 | 11.1% |
| | 26-30 | 31 | 15.7% |
| | 31-35 | 50 | 25.3 % |
| | 36-40 | 38 | 19.2 % |
| | 41-45 | 30 | 15.2% |
| | 46-50 | 21 | 10.6% |
| | 51-55 | 5 | 2.5% |
| | 55-60 | 1 | .5% |
| Work Experience | 0-5 | 54 | 27.7% |
| | 6-10 | 61 | 30.8% |
| | 11-15 | 51 | 25.8% |
| | 16-20 | 23 | 11.6% |
| | 20-25 | 9 | 4.5% |

Hypothesis Testing:

H1: There is a significant impact of Emotional intelligence on

organizational commitment for the managers of manufacturing industry:

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .328 ^a | .108 | .103 | .22952 |

a. Predictors: (Constant), MEAN_EI

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 1.244 | 1 | 1.244 | 23.613 | .000 ^b |
| | Residual | 10.325 | 196 | .053 | | |
| | Total | 11.569 | 197 | | | |

a. Dependent Variable: MEAN_OC

b. Predictors: (Constant), MEAN_EI

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.741 | .149 | | 18.355 | .000 |
| | MEAN_EI | .174 | .036 | .328 | 4.859 | .000 |

a. Dependent Variable: MEAN_OC

Interpretation: Emotional Intelligence (EI) significantly predicted on Organizational Commitment (OC), $\beta = .174, t(197) = 4.859, p < .05 (.000)$. EI also explained a significant proportion of variance on OC. $R^2 = 0.108, F(1, 196) = 23.613, p < .05 (.000)$.

Thus hypothesis fails to reject.

H2: There is no significant difference between Organizational commitments of managers on the basis of work experience.

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---------|----------------|----------------|-----|-------------|------|------|
| MEAN_OC | Between Groups | .150 | 4 | .037 | .632 | .640 |
| | Within Groups | 11.419 | 193 | .059 | | |
| | Total | 11.569 | 197 | | | |

The Above Table report that “There is insignificant difference between Organizational Commitment of managers on the basis of work experience at the $p < .05$ level of the four work experience groups [$F(4,193) = .632, p = .640$] so it can be concluded that the difference between

the mean values of different groups of work experience is insignificant at .05 levels. So the hypothesis H2 is accepted.

H3: There is no significant difference in Organizational Commitment of managers among different age group.

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|-------------|----------------|----------------|-----|-------------|-------|------|
| MEAN_O C | Between Groups | .515 | 7 | .074 | 1.265 | .270 |
| | Within Groups | 11.054 | 190 | .058 | | |
| | Total | 11.569 | 197 | | | |

The Above Table report that “There is insignificant difference between Organizational commitment of managers on the basis of age at the $p < .05$ level of the eight age groups [$F(7,190) = 1.265, p = .270$] so it can be concluded that the difference between the mean values of different age groups is insignificant at .05 levels. So the hypothesis H3 is accepted.

the people who are emotionally intelligent can understand their own and other’s emotions and feeling in a better way and can use emotions management skills effectively and efficiently in crisis and critical incidences at the work place. This can make them to be more emotionally stable and hence their commitment toward the organization can be increased and in turns organizational citizenship behavior can be developed.

RESULTS & DISCUSSION

- The results qualify that Emotional Intelligence of Managers has a significant positive impact on Organizational Commitment which means that Managers with high Emotional Intelligence will be more committed towards organization than those of lesser Emotional Intelligence. This result reveals that

- The study of demography is also appropriate to be done. Organizational commitment is not significantly different age wise and work experience wise. The demographic result indicates that Organizational commitment is not

significantly different age wise and work experience wise which explain that commitment of people towards organization is not likely to be increased by age and work experience of people as satisfaction with their work might be on utmost priority.

CONCLUSION

The pioneering study has full-filled its objectives. The study's findings suggest that EI would significantly impact Organizational commitment. The study findings may prove that Emotional Intelligence can make a real contribution to organizational commitment and productivity because better committed employees will apply their efforts willingly to the optimum level which will enhance organizational growth. Emotional intelligence shapes employees to be more emotionally positive and stable, thereby making them more productive which results in better quality work and high commitment. This study is certainly capable of inspiring new ideas that can lead in problem statement of other research in the years to come, as well can help add to the literature review of other researchers.

IMPLICATIONS OF RESEARCH

To the Organizations: Practically, organizations that wish to reap the benefits of highly committed employees need to consider their emotional intelligence. The

research will provide data to the Organization regarding the Emotional Intelligence level of managers, their attitude towards jobs and their commitment towards the organizations which helps them to sensitize their lacking areas to improve upon.

To the Researcher: In India lots of research required in this field for increasing the commitment level of employees. Variables can be tested to a different group of population by the further research. The effect of gender can also be tested. Based on limitations, the study provides recommendations for future research to conduct a broader analysis not only limited to Manufacturing Sector but others as well. The further researcher should focus on the role of these variables in addition to other organizational variables to predict the performance and productivity of organization.

To the Practitioner: The major practical implication for practitioners is the need to monitor the commitment of employees in their organization as it exhibit the implementation of HRM practices at work place. Our findings clearly support the need for organizations to evaluate and monitor employee's organizational commitment.

Limitations and Future Research

- The surveying of the population in itself is subject to criticism. The survey is based on self-reported

information that is further exposed to response-bias and the study lacks the methods of controlling this so we suggest that caution should be exercised in generalizing the result.

- Since the study is based on a single industry so again any attempt in generalizing the results should carefully be made and there is a scope in other sector for generalizing the results.
- The results of this study are limited and constrained by the two measures used for this study. So there is a huge scope of work by adding few more variables.
- In addition, the results of this study are bound by the context of the research, we also recommend that future research endeavors be focused on this aspect and replication of this study into different work-settings especially cross-cultural and cross industry will further improve the study results within different perspectives.
- In the manufacturing perspective future studies should focus on the role of these variables in addition to other organizational variables to predict the performance and productivity of organization.

REFERENCES

1. Abdulazim Ghoniem, Sayed ElKhouly, Ghada Mohsen and Mohammed Ibrahim. (2011). Impact of Emotional Intelligence and Gender on Job Satisfaction among Egyptian Government Sector Employees. *Current Research Journal of Social Sciences* 3(1): 22-27
2. Allen, N.J. and Grisaffe, D.B. (2001) 'Employee Commitment to the Organization and Customer Reactions: Mapping the Linkages', *Human Resource Management Review*, 11: 209–36.
3. Abi Ealias, Jijo George. (2012). Emotional Intelligence and Job Satisfaction: A Correlation study. *The International journal's: Research journal of commerce & Behavioral science*, ISSN 2251-1547
4. Abraham, R. (1999). The impact of emotional dissonance on organizational commitment and intention to turnover. *Journal of Psychology*, 133, 441–455
5. Adil Adnan Amjad Ali Chaudhry Muhammad Imran Malik.(2012). Emotional Intelligence and Students' Academic Performance: A Study Conducted in Pakistan and Afghanistan. *Science Series Data Report Vol 4, No. 3*
6. Begley, T. M., & Czajka, J.M. 1993. Panel analysis of the moderating effects of commitment on job satisfaction, intent to quit, and health following organizational change. *Journal of Applied Psychology*, 78:

- 552-556.
7. Belal A. Kaifi, Selaiman A. Noori.(2010). Organizational Management: A Study on Middle Managers, Gender, and Emotional Intelligence Levels. *Journal of Business Studies Quarterly*, Vol. 1, No. 3, pp. 13-23
 8. Benkhoff, Birgit (1997), "Disentangling organizational commitment. The dangers of the OCQ for research and policy," *Personnel Review*, 26, 1/2, 114-131.
 9. Curry, J.P., Wakefield, D.S., Price, J.L. and Mueller, C.W. (1986) 'On the Causal Ordering of Job Satisfaction and Organizational Commitment', *Academy of Management Journal*, 29: 847-58.
 10. D . A . A d e y e m o . (2 0 0 8) . Demographic characteristics and emotional intelligence among workers in some selected organizations in oyo state nigeria. *VISION—The Journal of Business Perspective* 1 Vol. 12 1 No. 1 1 January-March 2008
 11. Daejeong Choi, In-Sue Oh, Russell P. Guay and Eunjung Lee.(2011). Why Do Emotionally Intelligent People Have Positive Work Attitudes? The mediating role of situational judgment effectiveness. *International Journal of Selection and Assessment*, Volume 19 Number 4
 12. Dulewicz, V. & Higgs, M.J. (2000). Emotional Intelligence: a review and evaluation study. *Journal of Management Psychology*, 15(4), pp.341-372
 13. Elizur, D., & Koslowsky, M, (2001), Values and organizational commitment. *International Journal of Manpower*, 22, 593-600,
 14. Kamran Nazari and Mostafa Emami.(2012).Analysing of relation between organizational commitment and professional commitment. *Elixir Human Res. Mgmt.* 51 10661-10664
 15. K a n u n g o , R . N . (1 9 8 2) , Measurement of job and work involvement, *Journal of Applied Psychology*, 67 (3), pp. 341-349.
 16. Ketchand, A.A., and J.R. Strawser. 2001. Multiple dimensions of organizational commitment: Implications for future accounting research. *Behavioral Research in Accounting* 13, no. 3: 221-51.
 17. Locke, E.A. (1976) 'The Nature and Causes of Job Satisfaction'. In Dunnette, M.D. (ed.) *Handbook of Industrial and Organizational Psychology*. Chicago, IL: Rand-McNally, pp. 1297-349.
 18. Marsh, R, M., & Mannari, H, 1977, Organizational commitment and turnover: A prediction study. *Administrative Science Quarterly*, 22: 57-75,
 19. Neeru Malhotral and Avinandan Mukherjee.(2003). Analysing the commitment- service quality relationship: A comparative study of

-
- retail banking call centres and branches. *Journal of Marketing Management*, 2003, 19, 941-971
20. Randall, D.A. (1990) 'The Consequences of Organizational Commitment: Methodological Investigation', *Journal of Organizational Behavior*, 11: 361-78.
 21. Rao, P. (2006). Emotional intelligence: The sine qua non for a clinical leadership toolbox. *Journal of Communication Disorders*, 39(4), 310-319.
 22. Scott Macdonald, Peter MacIntyre (1997), "The Generic Job Satisfaction Scale: Scale Development and Its Correlates", *Employee Assistance Quarterly*, Vol. 13(2), The Haworth Press Inc.
 23. "Seltzer, J. & Bass, B.M. (1990). Transformational leadership: Beyond initiation and consideration. *Journal of Management*, 16, 693-703.
 24. Staw, B. M., & Cohen-Charash, Y. (2005). The dispositional approach to job satisfaction: More than a mirage, but not yet an oasis: Comment. *Journal of Organizational Behavior*, 26(1), 59-78.
 25. Wegge, J., Schmidt, K., Parkes, C., & van Dick, K. (2007). 'Taking a sickie': Job satisfaction and job involvement as interactive predictors of absenteeism in a public organization. *Journal of Occupational and Organizational Psychology*, 80, 77-89
 26. Xiong, C. & Francescisco, A. (2000). Employee demography, organizational commitment, and turnover intentions in China: Do cultural differences matter? *Human Relation*, 53, 6, 869- 882.
 27. Yongsun Paik, K. Praveen Parboteeah and Wonshul Shim.(2007). The relationship between perceived compensation, organizational commitment and job satisfaction: the case of Mexican workers in the Korean Maquiladoras. *Int. J. of Human Resource Management* 18:10 October 2007 1768-1781

Brand Equity & Brand Preferences Influencing the Purchase Decision : Developments and Directions

Madhusmita Choudhury¹
Prof Dr Bidhu Bhusan Mishra²
Dr P.K.Mohanty³

Abstract

In the process of product purchase from any market, consumers normally have to go through the decision of what brand to buy (Brand choice) and from where exactly to buy (place choice) to get maximum benefits on the spending they will do (Lee, M. S. ,1992). With the extensive literature study done by the authors for brand choice, marketers need to act smartly to woo customers to their place/store/retail point/dealership by contributing reasons to customers so that they can take decision to buy. The current research highlights constructs and variables responsible for brand choice. Marketers implementing this will be successful as a market leader and further this research will recommend a model based on extensive literature review. This study also suggests a theoretical framework for consumers- what to buy and where should they go to buy and also further directions to other researchers in the related area.

Keywords: Brand choice, Purchase intentions, Brand Equity, Brand image, Brand preference.

INTRODUCTION

Brand is a symbol, sign, name , term or may be an amalgamation of all the attributes which is specifically designed to differentiate product of one seller/competitor from other (Kotler, 1997, P.443) and plays numerous roles in consumer choice to decide them which specific brand to choose from the available brands in the market. These roles may be effecting brand choice and consumer preferences; and the quantity of item being chosen and these effects are developed through several other mechanisms like psychological process, sociological process, and economic process

too. (Keller, 2002; Swait, J., & Erdem, T. 2007)

In this particular paper, we investigate different construct which effects brand choice and hence consumer decide to purchase from a particular location. The marketer model developed in this paper rests on the assumption of the key constructs affecting the brand choice and its variable which may be taken care to create a good impression in the mind of customer to get maximum benefits. Previous existing models are given directions to consumer to choose a product however we have hypothesized a model to be followed by

¹ Research Scholar, Centurion University of Technology & Management & Assistant professor Department of Management Studies, Affinity Business School, Bhubaneswar, Odisha, 2madhusmitachoudhury@gmail.com

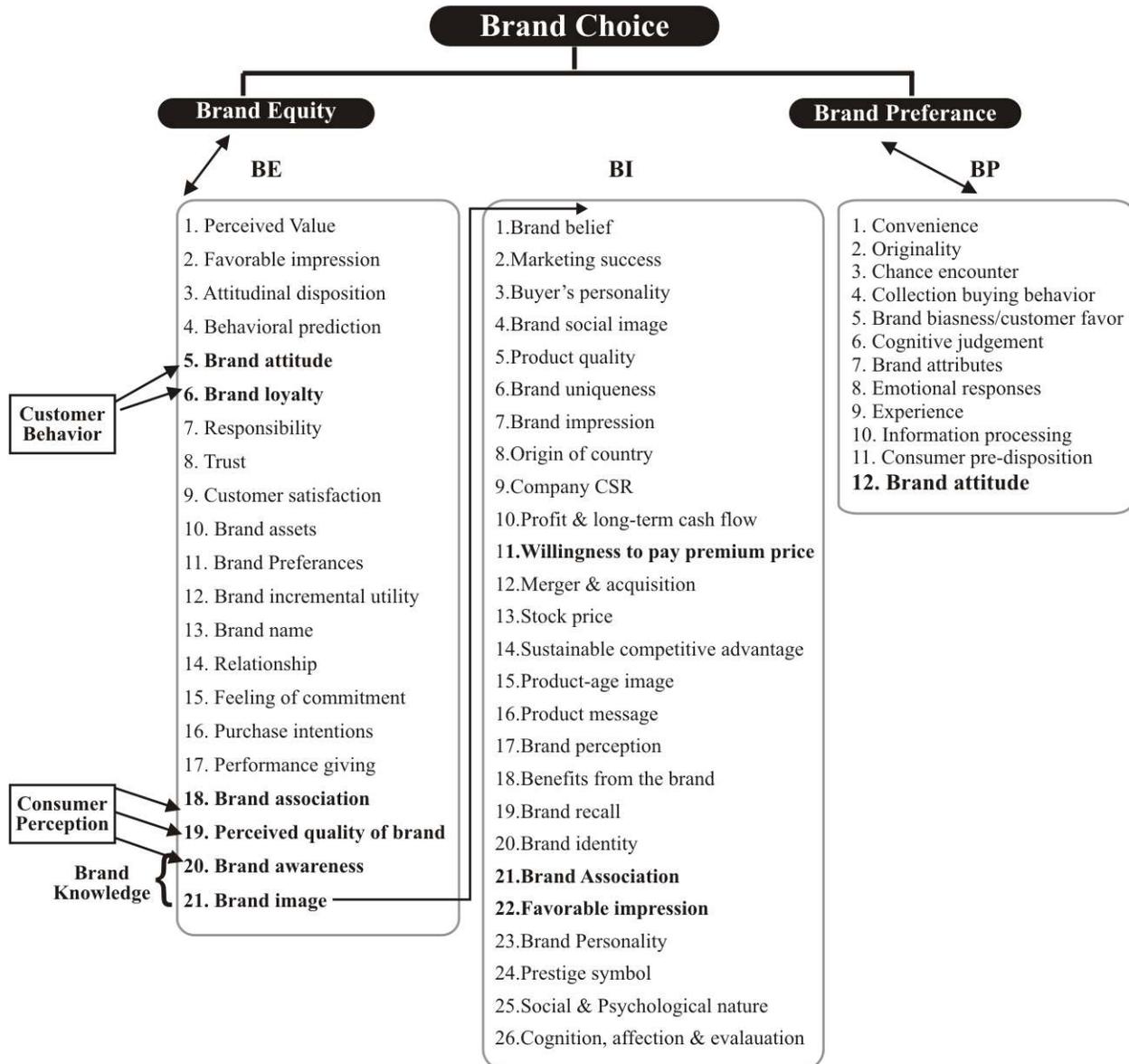
² Professor & HOD, Dept. of Business Administration, Professor Utkal University, Bhubaneswar, Odisha, bidhu.mishra@gmail.com

³ Dean, School of Management, Centurion University of Technology & Management, Bhubaneswar, Odisha, deansom@cutm.ac.in

marketers. Unfussiness methodology has been adopted by us to produce a model which contains important constructs and variable related to brand choice which is empirically estimated with construct

validity methodology to validate different variables. It is hypothesized that underlying brand choice is categorized into two parts: Brand Equity & Brand Preference (Chen et al,2008 ; CobbWalgren et al,1993)

Figure -1



Source : Authors Extensive Literature Review

LITERATURE REVIEW

1.1. Brand equity and Purchase decision

Brand value has been a focal point of promoting marketing interest since the 1960s, yet the general spotlight has been on brand value's precursors instead of its results. There is a little accord with respect to conclusions. This examination goes for an incorporated structure for the forerunners and results of brand value and the attention is on service brand value rather than customer product brand value that structures the greater part of distributed work.

From the perspective of Chen et al (2008), the connections between purchase intentions, brand preference and brand equity on global air passengers' choices in Taiwan indicate positive connections between purchase intentions, brand preference and brand equity with a balance impact on switching cost, switching cost influencing the connection between purchase intentions and brand equity. All the more particularly, the impact of brand equity on purchase intentions isn't critical for passengers with low switching costs.

Keller (1993) and Chaudhuri (1995) partition brand equity (value) into two classes: money related and client based. From the monetary point of view, brand equity (value) can be seen as the budgetary resources value made by brands (Bailey and Ball, 2006;

Lassar, Mittal, and Sharma, 1995), which might be showed as 'the extra income made by a brand' (Biel, 1992). The clients based viewpoints, the focal point of the present examination, were at first proposed by Keller (1993) and depend on the assessment of purchaser reaction to a brand name. Chaudhuri (1995) considers brand equity(value) the value added to an item or service by a specific brand name, for example, client-based brand value . Further brand equity (value) is endowed by the brand name. (Farquahar et al,1991) and incremental utility of brand (Kamakura & Russell,1993). Brand equity may also be defined as the incremental value of a specific brand on the goods/service they market well because of the brand name it is having. (Srivastava & Shocker,1991).

Keller's (1993) research considers buyer reaction in a more express way, distinguishing brand value as the 'differential impact of brand information on purchaser reaction to the advertising of the brand'. Brand equity (value) can likewise be seen as the consequence of shopper behavior. Park and Srinivasan (1994) utilized a client based meaning of brand value as 'the additional value invested by the brand to the item as saw by a purchaser'. The focal element of these meanings of brand equity (value) is the additional engaging quality to the client that a brand name gives on an

item or services, as the operational meaning of brand equity (value) in the present investigation. Favorable impression for any specific brand, attitudinal dispositions (Dichter, 1985) for specific brand and behavioral prediction for any brand can also be known through brand equity (value) which is the outcome of Rangaswamy et al, 1993 study.

The knowledge about any brand has alluded in Keller's depiction of brand equity (value) was characterized as an acquainted system network memory model that incorporates two segments: brand awareness and brand image in the mind of the customer. Aaker (1991 ;1996) claims that brand equity (value) has five measurements: brand loyalty (Shocker and Weitz,1998), brand affiliation / association (Newman, 1957; Reynolds & Gutman, 1984; Keller,1993 ;Dobni & Zinkhan, 1990 ; Arai, Ko, & Kaplanidou, 2013 ; Anselmsson, Bondesson, & Johansson, 2014), brand awareness, saw nature of the brand/perceived quality of brand (Agarwal & Rao,1996), and other restrictive brand resources. Lassar et al. (1995) change the meaning of brand value proposed by Martin and Brown (1990) to the performance given, perceived value, image, reliability/trustworthiness, also, a sentiment duty towards customer. With the help of these dimensions, author can explore further

the implications on marketing and how consumers are behaving in relation to brand equity (Value) (Barwise,1993).

Kyung Hoon et al (2008), recommends his investigations identifying with Healthcare advertisers confront one of a kind difficulties around the globe, the part of the social insurance field plays in adding to open welfare. Health Service facility promoting in Korea is especially testing since Korean law denies clinics from running any publicizing materials. Subsequently, Korean health facilities depend intensely on customer relationship Management (CRM). This investigation distinguishes five factors that impact the formation of brand equity (value) through effective customer's connections. They are customer satisfaction, trust, relationship responsibility, brand awareness and brand loyalty. Morgan (2000) in his study said that brand equity can be divided into two types i.e Consumer perception (Perceived quality of a brand, Brand awareness & Brand association) and Customer behavior (Willingness to pay a high price & Brand loyalty).

Chang et al (2009), the forerunners of brand equity (value) are thought to be brand image (Shocker and Weitz, 1998) and brand attitude (Dichter, 1985) and the outcomes of brand

equity (value) are thought to be brand inclination (preferences) and Purchase intentions (CobbWalgren et al, 1993) which leads to brand choice (CobbWalgren et al,1993). This investigation focuses on benefits of brands, choosing 18 from 3 benefit classes. A structural equation model is exhibited. Not exclusively does it demonstrate a good fit with the constructs of research yet in addition the connections between brand image and brand equity (value), and brand attitude and brand equity (value). The effect of brand equity (value) on buyer buying preference and purchase decision is affirmed also, which a tendency to approve the proposed has inquired about system.

1.1.1.Brand image and Purchase decision

Brand image is Social and psychological nature of goods/ service (Gardner & Levy, 1955 ; Levy, 1978), image of buyer's personality (Martineau,1957), the impression of brand a consumer received from his/her database of sources (Herzorg,1963), product symbol (Sommers,1964), Prestige symbol (Pohlman & Mudd, 1973 ; Levy & Glick, 1973), Product –age image as every consumer have a image about the product as an adulterian product image or a child product image (Bettinger

et al, 1979). Brand image also can be defined as the product message (Swartz, 1983 ; Reynolds & Gutman, 1984; Durgee & Stuart, 1987) given by brand , (Hendon & Williams, 1985 ; Sirgy, 1985; Shank, 2008).

Brand image can be created in the mind of customer for any brand by the communication of cognitive, affective and through the process of evaluation a customer does for any brand (Friedmann & Lessig, 1987 ; Lee, T. W., & Govindan, S., 2014). Brand image also include financial value, product features and technical matters (Noth, 1988), brand benefits which may be functional, symbolic and emotional derived from the brand (Dobni & Zinkhan, 1990), perception about the mind (Vazquez, del Rio, & Iglesias, 2001), Brand recall (Ross, James, & Vargas, 2006), Brand identity (Roy & Banerjee, 2014). Anselmsson, J et al (2014) conducted a quantitative study of brand image found in food & branding materials and their effect on brand loyalty and customer's willingness to pay a premium price for packaged food and they found that product quality is most important factor

of customer's willingness to pay premium price (Morgan,2000). The other strongest factors where customer is ready to pay a premium price is brand's social image(Gardner & Levy,1955), brand uniqueness , origin of country and company's CSR activities and awareness.

As indicated by Yoo and Donthu (2001), a brand image can impact an organization's future benefits and long-haul money stream, a shopper's eagerness to pay premium costs, merger and acquisition decision-making process, stock costs, practical upper hand, and marketing achievement.

Kotler and Armstrong (1996) characterize brand image as 'an arrangement of convictions held about a specific brand'. This arrangement of convictions assumes a critical part of the purchaser's basic decision-making process when clients assess elective/alternative brands. Keller (1993) has characterized brand image as 'recognitions about a brand as reflected by the brand affiliations/associations held in purchaser memory', and this definition has been embraced by Faircloth et al. (2001) and Romaniuk and Sharp (2003).

Campbell (1993) characterized brand image as the blend of the customer's observations and convictions about a brand. Obviously, brand image is in some cases mistook for brand equity (value). Biel (1992) proposes that brand equity reflects the brand value, though the brand image is the affiliations/associations the purchaser may have with a specific brand.

In the present proposition, brand image is characterized as 'the customer's discernment toward a specific brand name'. Romaniuk and Sharp (2003) brings up that brand image could originate from an assortment of sources, marketing communication and including purchaser service encounter, as well as informal communication (WOM). Gordon (1993) recommends that brand image is made up of five distinct aspects, which are user image, product image, occasion image, brand personality, and remarkable quality.

A decent beginning stage to portray brand image is as a group of traits and affiliations/associations that customers interface with the brand name (Biel, 1992). As indicated by Keller (1998) and Chang (2006),

traits, either item related or non-item related, are those distinct highlights that portray goods or service. Qualitative and quantitative research strategies are both used to gauge brand image (Keller, 1998). Qualitative research systems are generally unstructured estimation approaches that allow any conceivable approach, and are hence most as often as possible connected as the initial phase in investigating purchaser brand or item observations. Free affiliation/association is a case of a qualitative research procedure. While qualitative research regularly inspires some sort of verbal reactions from buyers, quantitative research utilizes different kinds of scale addresses with the goal that numerical portrayals and outlines can be made (Keller, 1998).

1.2. Brand preferences and Purchase decision

Customer brand preference is a basic step towards comprehending customer decision behavior and has always received incredible consideration from advertisers. In any case, the investigation of brand preference has been restricted to customary advertising concentrating on utilitarian ascribes to augment utility. Be that as it may, now the move

to experiential promoting expands the part of the brand from a heap of credits to encounters.

The inclination for comfort, originality / newness, chance experiences, and collection purchasing behavior are however a few purposes behind redundant purchase designs (de Chernatony, Harris, and Christodoulides, 2004). Brand inclination/preference is the predisposition a client holds toward a specific brand. Cobb-Walgren et al. (1995) and Myers (2003) have focused on the significance of building brand equity (value), which brings the upside of more buyer brand inclination and customer's buy intention to the firm. Hellier, Geursen, Carr, and Rickard (2003) characterized brand inclination as 'the degree to which the client supports the service gave by his or her present organization, in contrast with the service gave by different organizations in his or her mind set'. The purchase intentions are a client's intent to purchase a particular brand and have as of now been the focal point of extensive consideration.

Results from investigation of Jamal, A., & Al-Marri, M. (2007) offer help for a solid connection between mental self-image compatibility and brand fulfillment and between brand preference and brand fulfillment among clients of cars by and large. As such, both mental self-image

compatibility and brand preference have all the earmarks of being solid indicators of brand fulfillment in the vehicle showcase. This is in accordance with earlier research which has revealed comparative discoveries in the travel destination market (Sirgy et al. 1997), retail banking (Jamal 2004) and valuable jewelry industry (Jamal and Goode 2001). We can likewise presume that, when all is said in done, self-concept assumes an imperative part in deciding customer decision and that a few purchasers may lean toward brands that have images good with their perception of self (Belk, et al. 1982; Ericksen 1996, Mehta 1999, Sirgy et al. 1985; 1997; Zinkham and Hong 1991; Jamal 2004; Jamal and Goode 2001).

Brand fulfillment is the inclination a client towards a brand after it has been utilized, it can be driven by a scope of components, including brand preference, on the grounds that the measurements basic fulfillment judgments are worldwide as opposed to particular (Rust and Oliver 1994). We contend that brand fulfillment is probably going to be more prominent for most favored brands than for slightest favored brands. Brand preference mirrors certain intellectual judgments and additionally some positive full of feeling emotions, which are probably going to be held in

the memory. Escalated rivalry exists inside the vehicle advertise with wide assortment and decision for clients inside every product marketed. Because of the exceptionally focused nature of the market, numerous understand that having a solid corporate brand could be a basic piece of an upper hand for a firm (de Chernatony and McDonald 1998; McDonald et. al. 2001). A solid corporate image is regularly the best type of separation as solid brands develop clients' trust and empower clients to better envision and comprehend brand (Berry 2000). Brand promotion has its impact by affecting convictions about a brand with a view to create brand preference the item class.

Consumer attitude models, for example, Fishbein's model (1965), which depend on the expectancy-value model, are regularly used to comprehend shopper inclinations. As per this model, the purchaser's inclination for a brand is a component of his/her psychological convictions about the brand's weighted traits (Bass and Talarzyk, 1972; Bass and Wilkie, 1973). This model adds to the investigation of preferences is still generally utilized (Allen, Machleit, Kleine, and Notani, 2005; Muthithcharoen, Palvia, and Grover, 2011). However, it has been condemned throughout the years for

the accompanying reasons : To start with, brand inclination is estimated by a solitary value, the after effect of an algebraic equation (Bagozzi, 1982), and centers around utilitarian convictions as the fundamental driver of shopper assessment reactions. Second, it disregards different sources, for example, emotional responses (Agarwal and Malhotra, 2005; Allen et al., 2005), which add to preference development (Bagozzi, 1982; Grimm, 2005; Zajonc and Markus, 1982). Third, the narrow perspective of this model constrains its utilization to specific kinds of chiefly utilitarian items (Park & Srinivasan, 1994). In any case, the appropriateness of multi-credit models to items with substantial characteristics that contribute just minorly to buyer inclinations has been addressed (Holbrook and Hirschman, 1982; Zajonc and Markus, 1982). Fourth, the consideration of weightings as a piece of the algebraic equation introduced in this model reduces its prescient power (Churchill, 1972; Sheth and Talarzyk, 1972). Additionally, the Halo effect of this model can prompt wrong choices identified with brand design and positioning (Leuthesser, Kohli, and Harich, 1995). This has started the need to consider different ways to mark inclination development other than the shopper's remarkable convictions of brand qualities.

Psychologists see preference as a learning construct and characterize knowledge and processing of information as the two principle wellsprings of buyer preference learning (Amir and Levav, 2008; Howard and Sheth, 1969; Sheth, 1968). Howard and Sheth (1969) recommend that brand preference alludes to purchasers' inclination towards specific brands that compress their subjective data preparing towards brand stimuli. This theory and other information processing models (Bettman, Capon, and Lutz, 1975) underline both the focal control unit and the psychological capacities of purchasers. In this manner, it takes after that a buyer's discernment about brand ascribes prompts preferences or attitudes, which influences his/her purchase intentions and brand decisions (Bagozzi, 1982). Along these lines, inclination/preferences speak to a progress state between the input of information and yields of the customer decision model. It is the connection between information input and the outcome of expectation to really buy or select a specific brand (Bagozzi, 1983). It is recommended that experience ought to be joined with the brand importance put away in purchasers' brains to create inclinations. As an immediate wellspring of buyer inclinations, it is recommended that experience

advances better memory with striking and solid information (Paivio, 1971). Schwarz (2004) proved that purchasers depend on their experiences as trusted wellsprings of information, to judge amongst alternative products and settle on decision to purchase. Customers favor brand that give an important experience while they personally visit store/location/places (Goode, Dahl, and Moreau, 2010).

Manoj Pandey and Dr. J.K. Raju (2009), the result of brand positioning is brand perception which can be accumulated from different courses including client encounters at your place, promoting correspondence endeavors (Marketing communication) and WOM. The impression of any brand is basic as it is clear from the tremendous measure of cash being spent by association on brand advancement and estimation. Still next to no is thought about the connection between brand perception and behavior of customer which includes brand loyalty. It additionally underscores that brand uniqueness is basic in getting the customer consideration however the source to make that uniqueness is basic in getting the client consideration. Notwithstanding the over, the paper talks about various short and long haul systems of brand advancement (development) (Figure-1).

CONCLUSION

The above model is only the developments happened in different aspects of Brand equity, Brand image, Brand preferences, Brand Association and Consumer Perception. We here tried to depict a model which helps marketer to work on these areas to aid ailments for brand choice.

REFERENCE

1. Aaker, D. A., & Equity, M. B. (1991). The Free Press. *New York, 206*.
2. Aaker, D. (1996). Measuring brand equity across products and markets. *California Management Review*, 38(3), 102–119
3. Agarwal, J., & Malhotra, N. K. (2005). An integrated model of attitude affect: Theoretical foundation and an empirical investigation. *Journal of Business Research*, 58, 483–493. doi:10.1016/S0148-2963(03)00138-3
4. Allen, C. T., Machleit, K. A., Kleine, S. S., & Notani, A. S. (2005). A place for emotion in attitude models. *Journal of Business Research*, 58, 494–499. doi:10.1016/S0148-2963(03)00139-5
5. Amir, O., & Levav, J. (2008). Choice construction versus preference construction: The instability of preferences learned in context. *Journal of Marketing Research*, 45(2), 145–158. doi:10.1509/jmkr.45.2.145
6. Anselmsson, J., Vestman Bondesson, N., & Johansson, U. (2014). Brand image and customers' willingness to

- pay a price premium for food brands. *Journal of Product & Brand Management*, 23(2), 90-102.
7. Arai, A., Ko, Y. J., & Kaplanidou, K. (2013). Athlete brand image: scale development and model test. *European Sport Management Quarterly*, 13(4), 383-403. <http://dx.doi.org/10.1080/16184742.2013.811609>
 8. Bagozzi, R. P. (1982). A field investigation of causal relations among cognitions, affect, intentions, and behavior. *Journal of Marketing Research*, 19(4), 562-683. doi:10.2307/3151727
 9. Bagozzi, R. P. (1983). A holistic methodology for modeling consumer response to innovation. *Operations Research*, 31(1), 128-176. doi:10.1287/opre.31.1.128
 10. Bailey, R., & Ball, S. (2006). An exploration of the meanings of hotel brand equity. *The Service Industries Journal*, 26(1), 15-38.
 11. Barwise, P. (1993). Brand equity: snark or boojum?. *International Journal of Research in Marketing*, 10(1), 93-104.
 12. Bass, F. M., & Talarzyk, W. W. (1972). An attitude model for the study of brand preference. *Journal of Marketing Research*, 9(1), 93-96. doi:10.2307/3149618
 13. Bass, F. M., & Wilkie, W. L. (1973). A comparative analysis of attitudinal predictions of brand preference. *Journal of Marketing Research*, 10(3), 262-269. doi:10.2307/3149693
 14. Belk, R.W., Bahn K.D. and Mayer R.N. (1982), "Developmental Recognition of Consumption Symbolism", *Journal of Consumer Research*, Vol. 10, pp.4-17.
 15. Berry, L.L. (2000), "Cultivating Service Brand Equity", *Academy of Marketing Science Journal*, Vol. 28, No. 1, pp. 128-138.
 16. Bettinger, C. O., Dawson, L. E. Jr, & Wales, H. (1979). The impact of free sample advertising. *Journal of Advertising Research*, 19(3), 35-40.
 17. Bettman, J. R., Capon, N., & Lutz, R. J. (1975). Multi-attribute measurement models and multiattribute attitude theory: A test of construct validity. *Journal of Consumer Research*, 1(4), 1-15. doi:10.1086/208602
 18. Biel, A.L. (1992). How brand image drives brand equity. *Journal of Advertising Research*, 32(6), RC6-RC12.
 19. Campbell, K. (1993). Researching brands. In D.A. Aaker & A.L. Biel (Eds.), *Brand equity and advertising* (pp. 56-62). Hillsdale, NJ: Lawrence Erlbaum.
 20. Chang, H. H., & Liu, Y. M. (2009). The impact of brand equity on brand preference and purchase intentions in the service industries. *The Service Industries Journal*, 29(12), 1687-1706.

21. Chang, H.H. (2006). Development of performance measurement systems in quality management organisations. *The Service Industries Journal*, 26(7), 765–786.
22. Chaudhuri, A. (1995). Brand equity or double jeopardy? *Journal of Product and Brand Management*, 4(1), 26–32.
23. Chen, C. F., & Chang, Y. Y. (2008). Airline brand equity, brand preference, and purchase intentions - The moderating effects of switching costs. *Journal of Air Transport Management*, 14(1), 40-42.
24. Churchill, G. A. (1972). Linear attitude models: A study of predictive ability. *Journal of Marketing Research*, 9(4), 423–426. doi:10.2307/3149308
25. Cobb-Walgren, C. J., Ruble, C. A., & Donthu, N. (1995). Brand equity, brand preference, and purchase intent. *Journal of advertising*, 24(3), 25-40, available at <<http://www.tandfonline.com/doi/abs/10.1080/00913367.1995.10673481>>, accessed on 7th Jan 2017
26. de Chernatony, L. and McDonald, M. (1998), *Creating Powerful Brands in Consumer, Services and Industrial Markets*, Oxford: Butterworth-Heinemann
27. de Chernatony, L., Harris, F., & Christodoulides, G. (2004). Developing a brand performance measure for financial services brands. *The Service Industries Journal*, 24(2), 15–33.
28. Dichter, E. (1985). What's in an image? *Journal of Consumer Marketing*, 2(1), 75-81. <http://dx.doi.org/10.1108/eb038824>
29. Dobni, D., & Zinkhan, G. M. (1990). In search of brand image: a foundation analysis. *Advances in Consumer Research*, 17, 110-119
30. Durgee, J. F., & Stuart, R. W. (1987). Advertising symbols and brand names: That best represent key product meanings. *The Journal of Consumer Marketing*, 4(3), 15-24. <http://dx.doi.org/10.1108/eb008200>
31. Ericksen, M.K. (1996), “Using Self-Congruence and Ideal Congruence to Predict Purchase Intention: a European Perspective”, *Journal of Euro–Marketing*, Vol. 6, No. 1, pp. 41-56.
32. Faircloth, J.B., Capella, L.M., & Alford, B.L. (2001). The effect of brand attitude and brand image on brand equity. *Journal of Marketing Theory and Practice*, 9(3), 61–75.
33. Farquhar, P. H., Han, J. Y., & Ijiri, Y. (1991). Recognizing and measuring brand assets. *Report/Marketing Science Institute* (USA).
34. Fishbein, M. (1965). A consideration of beliefs, attitudes, and their relationships. In J. Seteiner, & M. Fishbein (Eds.), *Current studies in social psychology*. New York: Holt,

- Reinhart and Winston.
35. Friedmann, R., & Lessig, V. P. (1987). Psychological meaning of products and product positioning. *Journal of Product Innovation Management*, 4, 265-73. [http://dx.doi.org/10.1016/0737-6782\(87\)90030-0](http://dx.doi.org/10.1016/0737-6782(87)90030-0)
 36. Gardner, B. B., & Levy, S. J. (1955). The product and the brand. *Harvard Business Review*, 33(2), 33-39.
 37. Goode, M. R., Dahl, D. W., & Moreau, C. P. (2010). The effect of experiential analogies on consumer perceptions and attitudes. *Journal of Marketing Research*, 47(2), 274–286. doi:10.1509/jmkr.47.2.274
 38. Gordon, W. (1993). Accessing the brand through research. In D.A. Aaker & A.L. Biel (Eds.), *Brand equity and advertising* (pp. 33–56). Hillsdale, NJ: Lawrence Erlbaum.
 39. Grimm, P. E. (2005). Ab components' impact on brand preference. *Journal of Business Research*, 58 (4), 508–517. doi:10.1016/S0148-2963(03)00141-3
 40. Hellier, P.K., Geursen, G.M., Carr, R.A., & Rickard, J.A. (2003). Customer repurchase intention: A general structural equation model. *European Journal of Marketing*, 37(11/12), 1762–1800.
 41. Hendon, D. W., & Williams, E. L. (1985). Winning the battle for your customer. *Journal of Consumer Marketing*, 2(4), 65 - 75. <http://dx.doi.org/10.1108/eb008147>
 42. Herzog, H. (1963). Behavioral science concepts for analyzing the consumer. *Marketing and the Behavioral Sciences*, 76-86.
 43. Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research*, 9(2), 132–140. doi:10.1086/208906
 44. Howard, J. A., & Sheth, J. N. (1969). *The theory of buyer behaviour*. New York, NY: John Wiley & Sons
 45. Jamal, A. (2004), “Retail Banking and Customer Behaviour: A Study of Self Concept, Satisfaction and Technology Usage”, the *International Review of Retail, Distribution and Consumer Research*, 14(3), pp. 357-379.
 46. Jamal, A. and Goode, M. (2001), “Consumers and Brands: A Study of the Impact of Self-Image Congruence on Brand Preference and Satisfaction”, *Marketing Intelligence and Planning* 19(7), pp. 482-492.
 47. Jamal, A., & Al-Marri, M. (2007). Exploring the effect of self-image congruence and brand preference on satisfaction: the role of expertise. *Journal of Marketing Management*, 23(7-8), 613-629.
 48. Kamakura, W. A., & Russell, G. J. (1993). Measuring brand value with scanner data. *International Journal of Research in Marketing*, 10(1), 9-22.
 49. Keller, K. L. (1993) ‘Conceptualizing,

- measuring and managing customer-based brand equity', *Journal of Marketing*, Vol. 57, No. 1, pp. 1–22.
50. Keller, K.L. (1998). Strategic brand management: Building, measuring, and managing brand equity. Englewood Cliffs, NJ: Prentice-Hall
 51. Keller, K.L. (2002), *Branding & brand Equity*, MSI, Cambridge, MA.
 52. Kotler, P. (1997), *Marketing Management*, 9th ed., Prentice -Hall Upper saddle River, NJ, pp. 443
 53. Kotler, P., & Armstrong, G. (1996). *Principles of marketing*. New Jersey: Prentice-Hall.
 54. Kyung Hoon Kim, Kang Sik Kim, Dong Yul Kim, Jong Ho Kim, Suk Hou Kang (2008), "Brand Equity in Hospital Marketing", *Journal of Business Research*, 61 (2008), pp.75-82.
 55. Lassar, W., Mittal, B., & Sharma, A. (1995). Measuring customer-based brand equity. *Journal of Consumer Marketing*, 12(4), 11–19.
 56. Lee, M. S. (1992). CONSUMER SEARCH AND CHOICE PATTERNS AND NEW AUTOMOBILE BRAND AND DEALER CHOICE.
 57. Lee, T. W., & Govindan, S. (2014). Emerging Issues in Car Purchasing Decision. *Academic Research International*, 5(5), 169.
 58. Leuthesser, L., Kohli, C. S., & Harich, K. R. (1995). Brand equity: The halo effect measure. *European Journal of Marketing*, 29(4), 57–66. doi:10.1108/03090569510086657
 59. Levy & Glick, 1973 quoted from <Lee, J. L., James, J. D., & Kim, Y. K. (2014). A reconceptualization of brand image. *International journal of business administration*, 5(4)
 60. Levy, S. J. (1978). Marketplace behavior-its meaning for management. Amacom.
 61. Manoj Pandey & Dr. J.K. Raju (2009), Analyzing Relationship between Brand Perception and Customer Loyalty in Life Insurance Industry, *The Journal – Contemporary Management Research*, Vol.3, No 1, March 2009.
 62. Martin, G.S., & Brown, T.J. (1990). In search of brand equity: The conceptualization and measurement of the brand impression construct. In Childers, MacKenzie, Leigh, Skinner, (pp. 431–438). Chicago, IL: American Marketing Association Lynch Jr, Heckler, Gatignon, Fisk, & Graham (Eds.), *Marketing theory and applications*
 63. Martineau, P. (1957). *Motivation in advertising: Motives that make people buy*. New York: McGraw-Hill.
 64. McDonald, M. H. B., de Chernatony, L., and Harris, F. (2001), "Corporate Marketing and Service Brands: Moving Beyond the Fast Moving Consumer Goods Model", *European Journal of Marketing*, Vol. 35, No.3/4, pp. 335-356.

65. Mehta, A. (1999), "Using Self-Concept to Assess Advertising Effectiveness", *Journal of Advertising Research*, Vol. 39, January/February, pp. 81-89
66. Morgan, R. P. (2000). A Consumer-oriented Framework of Brand Equity and Loyalty. *International Journal of Market Research*, 42(1), 1-9.
67. Muthitharoen, A., Palvia, P. C., & Grover, V. (2011). Building a model of technology preference: The case of channel choices. *Decision Sciences*, 42(1), 205–237. doi:10.1111/j.1540-5915.2010.00306.x
68. Myers, C.A. (2003). Managing brand equity: A look at the impact of attributes. *Journal of Product & Brand Management*, 12(1), 39–51.
69. Newman, J. W. (1957, November-December). New Insight, New Progress, For Marketing. *Harvard Business Review*, 95-102.
70. Nöth, W. (1988). The language of commodities Groundwork for a semiotics of consumer goods. *International Journal of Research in Marketing*, 4(3), 173-186. [http://dx.doi.org/10.1016/S0167-8116\(88\)80003-X](http://dx.doi.org/10.1016/S0167-8116(88)80003-X)
71. Paivio, A. (1971). *Imagery and verbal processes*. New York: Holt, Rinehart & Winston.
72. Park, C.S., & Srinivasan, V. (1994). A survey-based method of measuring and understanding brand equity and its extendibility. *Journal of Marketing Research*, 31(2), 271–288.
73. Pohlman, A., & Mudd, S. (1973). Market image as a function of group and product type: A quantitative approach. *Journal of Applied Psychology*, 57(2), 167-71. <http://dx.doi.org/10.1037/h0037043>
74. Rangaswamy, A., Burke, R. R., & Oliva, T. A. (1993). Brand equity and the extendibility of brand names. *International Journal of Research in marketing*, 10(1), 61-75.
75. Reynolds, T. J., & Gutman, J. (1984, February-March). Advertising is image management. *Journal of Advertising Research*, 24, 27-38.
76. Romaniuk, J., & Sharp, B. (2003). Measuring brand perceptions: Testing quantity and quality. *Journal of Targeting, Measurement and Analysis for Marketing*, 11(3), 218–229.
77. Ross, S. D., James, J. D., & Vargas, P. (2006). Development of a scale to measure team brand associations in professional sport. *Journal of Sport Management*, 20, 260-279.
78. Roy, D., & Banerjee, S. (2014). Identification and measurement of brand identity: A quantitative approach. *Journal of Product & Brand Management*, 23(3), 6-36.
79. Rust, R.T., and Oliver, R.L. (1994), *Service Quality: New Dimensions in Theory and Practice*, London: Sage.
80. Schwarz, N. (2004). *Metacognitive*

- experiences in consumer judgment and decision making. *Journal of Consumer Psychology*, 14(4), 332-348. doi:10.1207/ s15327663 jcp1404_2
81. Shank, M. D. (2008). *Sports marketing: A strategic perspective*. Upper Saddle River: Pearson Prentice Hall.
 82. Sheth, J. N. (1968). How adults learn brand preferences. *Journal of Advertising Research*, 8(3), 25–36.
 83. Sheth, J. N., & Talarzyk, W. (1972). Perceived instrumentality and value importance as determinants of attitudes. *Journal of Marketing Research*, 9(1), 6–9. doi:10.2307/3149597
 84. Shocker, A. D., & Weitz, B. (1988). A perspective on brand equity principles and issues. Report, (88-104), 2-4.
 85. Sirgy, M. J. (1985). Using self-congruity and ideal congruity to predict purchase motivation. *Journal of Business Research*, 13, 195-206. [http://dx.doi.org/10.1016/0148-2963\(85\)90026-8](http://dx.doi.org/10.1016/0148-2963(85)90026-8)
 86. Sirgy, M.J., Grewal, D., Mangleburg, T.F., Park, J., Chon, K., Claiborne, C.B., Johar, J.S. and Berkman H. (1997), “Assessing the Predictive Validity of Two Methods of Measuring Self-Image Congruence”, *Journal of the Academy of Marketing Science*, Vol. 25, No. 3, pp.
 87. Sommers, M. S. (1964). Product symbolism and the perception of social strata. In *Proceedings of the American Marketing Association*, 22, 200-216.
 88. Srivastava, R. K., & Shocker, A. D. (1991). *Brand equity: a perspective on its meaning and measurement*. Marketing Science Institute.
 89. Swait, J., & Erdem, T. (2007). Brand effects on choice and choice set formation under uncertainty. *Marketing Science*, 26(5), 679-697.
 90. Swartz, T. A. (1983). Brand symbols and message differentiation. *Journal of Advertising Research*, 23(5), 59-64.
 91. Vázquez, R. K., del Rio, A. B., & Iglesias, V. (2002). Consumer-based brand equity: Development and validation of a measurement instrument. *Journal of Marketing Management*, 18, 27-48. <http://dx.doi.org/10.1362/0267257022775882>
 92. Yoo, B., & Donthu, N. (2001). Developing and validating a multidimensional consumer-based brand equity scale. *Journal of business research*, 52(1), 1-14.
 93. Zajonc, R. B., & Markus, H. (1982). Affective and cognitive factors in

-
- preferences. *Journal of Consumer Research*, 9(2), 123–131. doi: 10.1086/208905
94. Zinkham, G.M. and Hong J.W. (1991), “Self Concept and Advertising Effectiveness: a Conceptual Model of Congruency, Conspicuousness, and Response Mode”. In: Holman, R.H. for *Consumer Research*, Vol. 18, pp. 348-354 and Solomon, M.R. (eds.), *Advances in Consumer Research*, Provo: UT: Association.

Measuring Human Resource Policies & Practices in Refineries of Indian Oil Corporation Ltd

Mr. Abhishek Sharma¹
Dr. Ajay Sharma²

Abstract

The Oil Industry is playing a vital role in the World Economy. The importance of oil in the world evolved at a slow pace but once it was identified, it became one of the most important things in the lives of human beings. Oil is a vital source of energy for the world and will likely remain so for many decades to come, even under the most optimistic assumptions about the growth in alternative energy sources. Most countries are significantly affected by developments in the oil market, either as producers, consumers, or both. In 2010, oil provided about 34% of the world's energy needs, and in the future, oil is expected to continue to provide a leading component of the world's energy mix. The Indian oil industry is one of the largest of its kinds in the country. This industry ranks sixth globally. While some belong to the Public sector, a few are from private sector.

At present, there are **22 refineries** operating in the country, out of which 17 are in the Public sector and 3 in the private sector & 2 in Joint Venture. Out of 17 Public sector refineries, 8 are owned by Indian Oil Corporation Limited (IOCL), 2 each by Chennai Petroleum Corporation Limited (a subsidiary of IOCL), Hindustan Petroleum Corporation Limited (HPCL), Bharat Petroleum Corporation Limited (BPCL) and Oil and Natural Gas Corporation Limited, and 1 by Num aligarh Refinery Limited (a subsidiary of BPCL). The private sector refineries belong to Reliance Industries Limited and Essar Oil Limited. The Joint Venture refineries belong to Bharat Oman refinery ltd & HPCL Mittal energy ltd. The year 2011 has been marked by significant developments in the Oil and Gas sector as the Ministry of Petroleum and Natural Gas took several important initiatives for the growth of the sector. Keeping in the mind, the utmost significance of Human Resource in accomplishment of organisational goal efficiently, authors have chosen to look deeper at almost all the aspects of human resource policies and practices adopted in Refineries of Indian Oil Corporation Limited .

Keywords: *Indian Oil Refinery, Human Resource Policies, Practices, Data Envelopment Analysis, Tool factors.*

¹Senior Research Fellow SRF (Department of Commerce) N.R.E.C College Khurja

Email Id - Sharma46.abhi@gmail.com

²Associate Professor, G.L. Bajaj Institute of Management & Research, **Email Id** - ajay.sharma14317@gmail.com

INTRODUCTION

IOCL established as Oil marketing entity on 30th June 1959, Indian Oil Company Ltd was renamed Indian Oil Corporation Ltd. on 1st September 1964 following the merger of Indian Refineries Ltd. (Established in August 1958) with it. The IOCL Company covers the entire hydrocarbon value chain – from refining, pipeline transportation and marketing of petroleum products to exploration & production of crude oil & gas, marketing of natural gas, and petrochemicals. With a market capitalisation of Rs. 75,000 crores It is the leading Indian corporate in the fortune 'Global 500' listing ranked at the 88th position in the year 2013. Indian Oil closed the year 2012-13 with a sales turnover of Rs. 4,14,909 crores and profits of Rs. 5,005 crore. Indian Oil and its subsidiary (CPCL) accounted for over 49% petroleum products market share, 31% national refining capacity and 71% downstream sector pipelines capacity in India. Indian Oil is currently investing Rs. 47,000 crore in a host of projects. Indian Oil's cross-country network of crude oil and product pipelines, spanning 10,899 km and the largest in the country, meets the vital energy needs of the consumers in an efficient, economical and environment-friendly manner. Like IOCL it is also suffers from government mal-interference and not a good investment.

The Corporation's **Employee strength** as on 31st March, 2017 Indian Oil's employee strength is 33,135, out of which 16,545 are in the officer cadre. There are 2735 women

employees, constituting (8.25%) of the total manpower. Indian Oil's unique work culture is based on trust, openness and a commitment to creativity and consultation. The organisation identifies each and every one of its employees as an achiever who will make a difference. The experience and the knowledge gained by its people in building this mammoth organisation is now sought after by other developing countries. **Sources-** www.iocl.com/about-us/business/refining/careers

REFINING OF IOCL

Born from the vision of achieving self-reliance in oil refining and marketing for the nation, Indian Oil has gathered a luminous legacy of more than 100 years of accumulated experiences in all areas of petroleum refining by taking into its fold, the Digboi Refinery commissioned in 1901. Indian Oil Group of companies controls & operates 10 of India's 22 refineries. The group refining capacity is 65.7 million metric tonnes per annum (MMTPA) or 1.30 million barrels per day -the largest share among refining companies in India. It accounts for 31% share of national refining capacity. The Corporation has commissioned several grassroots refineries and modern process units. Procedures for commissioning and start-up of individual units and the refinery have been well lay out and enshrined in various customized operating manuals, which are continually updated. Indian Oil refineries have an ambitious growth plan with an outlay of

about Rs. 55,000 crore for capacity augmentation, de-bottlenecking, bottom up gradation and quality up gradation. Major projects under implementation include a 15 MMTPA grassroots refinery at Para dip, Orissa, Naphtha Cracker and Polymer Complex at Panipat, Panipat Refinery expansion from 12 MMTPA to 15 MMTPA, among others. On the environment front, all Indian Oil refineries fully comply with the statutory requirements. Several Clean Development Mechanism projects have also been initiated. To address concerns on safety at the work place, a number of steps were taken during the year, resulting in reduction of the frequency of accidents. Innovative strategies and knowledge-sharing are the tools available for converting challenges into opportunities for sustained organisational growth. With strategies and plans for several value-added projects in place, Indian Oil refineries will continue to play a leading role in the downstream hydrocarbon sector for meeting the rising energy needs of our country.

REFINERIES RUNNING BY IOCL

- (1) Digboi Refinery Upper Assam
- (2) Guwahati Refinery (Assam)
- (3) Barauni Refinery
- (4) Gujarat Refinery
- (5) Haldia Refinery
- (6) Mathura Refinery
- (7) Panipat Refinery
- (8) Bongaigaon Refinery

REVIEW OF LITERATURE

Lately, human resource management has emerged as an essential factor for sustained competitive advantage. Research highlights that organizations develop sustained competitive advantage through management of scarce and valuable resources (Barney, 1991). The human resource enables organizations to achieve optimization of resource, effectiveness, and continuous improvement consistently (Wernerfelt, 1994). An organization takes time to nurture and develop human capital in the form of knowledge, skills, abilities, motivation, attitude, and interpersonal relationship, and makes it difficult for competitors to imitate (Becker & Gerhart, 1996). Organizations are pursuing proactively human resource management (HRM) practices and systems to capitalize on strength of this vital asset for sustained competitive advantage in knowledge economy (Jackson & Schuler, 2000; MacDuffie, 1995). Review of literature indicated essential HRM practices as workforce planning is the workforce requirement in order to carry out the integrated plan of the organization (Matthis & Jackson, 2004); Job analysis is a detailed and systematic study of jobs to know the nature and characteristics of the people to be employed in various jobs (Cascio, 2006; Dessler, 2003); training and development refers to the imparting of specific skills, abilities and knowledge to an employee (Kundo, 2003); recruitment is the discovering of potential applicants for actual or anticipated

organizational vacancies and selection is the process of differentiating between applicants in order to identify those with a greater likelihood of success in a job.(Kulik, 2004); compensation and reward includes direct cash payment , indirect payments in the form of employee benefits and incentives to motivate employee to strive for higher levels of productivity.(Milkovich & Newmen, 2012); performance appraisal is the systematic evaluation of the individuals with respect to his performance on the job and his potential for her development.(Bernardin & Russel, 2011); career management (Schein, 1996); human resource information system is a method by which an organization collects analyses and reports information about people and jobs. It applies to information need at macro and micro levels.(Wolfe, 1998); quality of work life, personnel diversity, employees attitude surveys (Armstrong, 2005; Bracken, 2000; Hayes, 1999). According to Schuler et al.(2010) Human resource policies and practices involve the development of how individual should be managed and specific HR initiatives. Human resource policies and practices include those related to planning, staffing, appraising, compensating, and training and developing and labour relations.HR planning ensure that the industry has appropriate people at the right place and time. Performance appraisals are incorporated in the competitive strategies of industry headquarters and host units. Compensation policies should be strategically and culturally relevant. Training and development prepare

individuals to operate effectively and cooperate with other units. (Schuler et al 2010).We have chosen to look deeper at HR planning, staffing (recruitment & selection),training and development, appraising performance and compensation since these areas provide the possibility for comparison with the areas of human resource.

OBJECTIVES OF THE STUDY

Keeping in the mind, the utmost significance of Human Resource in accomplishment of organisational goal efficiently. The present study will be undertaken to examine almost all the aspects human resource policies and practices adopted in Refineries of Indian Oil Corporation Limited. Whereas specific prominence will be given towards:

- ▶ To study the current trend of Human Resource policies and practices followed by Refineries of IOCL.
- ▶ To examine human resource policies and practices differences between Refineries of IOCL.
- ▶ To analyse employees satisfaction level with existing human resource policies and practices in these organizations.
- ▶ To Developed & Maintain employee's appraisal & capabilities to achieve Human Resource policies and practices.

If, proper appraisal of HR system is done, all the stakeholders, the investors, the management, the staff and the public at large

would be benefited in a better way from this industry.

RESEARCH HYPOTHESIS

The present study will be based on following hypothesis and will be tested by using primary and secondary data, which will be collected from different sources.

NULL HYPOTHESIS

- (1) Human Resource Policies in Refineries of IOCL are Independent.
- (2) Management Practices in Refineries of IOCL are Independent.
- (3) Management is not successful in attracting and retaining best talent.
- (4) Employees are not satisfied with existing human resource policies in these Organizations.
- (5) International Proclaimed Policies are not adopted by Refineries of IOCL.

ALTERNATIVE HYPOTHESIS

- (1) Human Resource policies in Refineries of IOCL Positively affected.
- (2) Management Practices in Refineries of IOCL are Positively affected.
- (3) Management is quite successful in attracting and retaining best talent.
- (4) Employees are satisfied with existing human resource policies in these Organizations.
- (5) International Proclaimed Policies adopted by Refineries of IOCL.

RESEARCH METHODOLOGY

The Research Design is descriptive in nature. Both secondary and primary data is needed for conducting the proposed study. Convenient and snow ball sampling would be adopted for primary data collection. With the help of in depth interview of experts and secondary data analysis (Industry reports, Company reports, Export reports, Government reports etc.) relations could be established between oil industry and their personnel policies and Practices. The dynamics of industry could be understood by analysing correlation data. For that purpose a sample interview survey would be conducted.

- (1) **Interview** : In depth interview of selected employees in the Refineries of IOCL would act as a powerful instrument to delve deeper into the industry. Unstructured questionnaire will be used which either may be disguised or undisguised as per the need.
- (2) **Panel Discussion** : Panel Discussion will help in arriving the conclusive strategies for strategic growth of the industry.
- (3) **Sample Size** : Five percent (5%) of Total Employees of Refineries selected of IOCL.
- (4) **Structured Disguised Questionnaire (SDQ)** : SDQ will be used for collecting primary data. Secondary data will be used from the reports of various governments, industry associations and consultancy reports.

STATISTICAL TOOLS TO BE USED

Data would be analysed using **statistical tools like t-test, ANOVA, correlation** etc. as per the hypothesis and need of objectives.

RECOMMENDATION

The result of the study could also be a determinant towards making more reliable decisions on the planning process in HRM matters and implementation of associating program to increase management awareness and other employees' involvement. This study can provide additional information for the management the influences of HRM practices toward employee performance and human resource policies. The management also can use the finding on the HRM practices level practiced in human resource. The current approach to hiring staff into various positions should be reconsidered. Administrator should conduct a proper job analysis and evaluation of positions to be filled. Human resources accepting applications when job vacancies have not been posted and it should be reviewed. Human resources refer to people whose knowledge, skills, and abilities are utilized to create and deliver effective services. HR is considered the greatest resource of an organization. Effective recruitment and selection attracts the right quality and quantity of people. To further improve the system of human resource, modern technology should be utilized for strategically recruit and select HR. Moreover, a recruitment and selection program should be implemented to enhance

the capabilities of employees and those of the MSI.

REFERENCES

1. Armstrong, M.A. 2005. "Handbook of Human Resource Management", Practice, New Delhi : Kogan Page India.
2. Barney, J.B. 1991 "Firm resource and sustained competitive advantage", *Journal of Management*, 17, pp. 99-120.
3. Bernardin, H.J. and Russell, J.E.A. 1993. *Human Resource Management: An Experiential Approach*, Singapore: McGraw-Hill Inc.
4. Bracken, D.W. 2000. "Designing and using organizational surveys", *Personnel Psychology*, 53, Pp. 206-209.
5. Backer, B. and Gerhart, B. 1996. "The impact of human resource management on Organizational performance: progress and prospects", *Academy of Management Journal*, 39, pp. 779-801.
6. Cascio, W.F. 2006. "Managing Human Resource: Productivity, Quality of Work L Dessler, G. (2003) *Human Resource Management*, Delhi: Pearson Education Asia ife, Profits", New Delhi: Tata McGraw-Hill
7. Dessler, G. (2003) *Human Resource Management*, Delhi: Pearson Education Asia
8. Hayes, E. 1999. "Winning at Diversity,

-
- Executive Excellence”, New Delhi: Sage, July, p. 9.
9. Jackson, S. E. and Schuler, R. S. 2000. , Managing Human Resource, A Partnership Perspective”, Southern-Western College Publishing, London.
 10. MacDuffie, J.P. 1995. “Human resource bundles and manufacturing performance: Organisational logic and flexible production systems in the world auto industry”, Industrial and Labor Relations Review, 48, pp.197-221.
 11. Mathis, R.L. and Jackson, J.H. 2004. “Human Resource Management, Singapore”, Thomson, Asia Pte. Ltd.
 12. Kulik, C.T. 2004. “Human Resource for the non-HR Manager”, New Jersey: Lawrence Erlbaum Associates Publishers.
 13. Kundu, S. C. 2003. “Workforce diversity status: a study of employees’ reactions” Industrial Management & Data Systems, 103 (4), pp.215-226.
 14. Milkovich, G.T. and Newman, J.M. 1999. Compensation, New York: Irwin/McGraw-Hi
 15. Wolfe, S. 1998. HRIS usability: why you can’t afford to ignore it, IHRIM Link, January 1998.ii.
 16. Wernerfelt, B. 1984. A resource-based view of the firm. Strategic Management Journal, 5, pp.171-180.

Capturing Emerging Trends to Bridge Relevancy Gap Between Academic Delivery of Course on Business Research and Talent Expectation of Research Industry

Dr. Ritesh Singhal¹
Pankaj Chauhan²

Abstract

What is changing in business research in terms of practices and methods? Are the emerging trends in business research valuable enough to be included as essential contents for the course on business research? This research paper aims to cast light on the trends that are likely to stay for a significant time and hence are academically must to deliver in classroom session while teaching course on business research. This paper investigates business related emerging research practices and tools with an objective to find their suitability from academic perspective. This paper will uncover the trends that may help students in becoming potentially more suitable and job ready for research industry that offer solutions to businesses and also helps in upgrading the subject matter of course on business research methods. The overall content in this paper creates valuable insight on the basis of exploration of emerging research trends hence this paper shall contribute as a reference material for the future research related to this topic.

Keywords: *Business research methods, Emerging research trends, Big data, Business intelligence, Web analytics*

1. INTRODUCTION

Business research industry is among the most inquisitive industry where information is the product and service too (Ferguson, 2005). Revenue of the firms in research industry like other industries also depend on the values (Jobber, 2007) but nature and meaning of value in this industry is quite differentiated than the nature and meaning of value in most of other industries. In research industry availability of information have negative effect on most of research products and services (Colm, 2012). Hence

firms working on new methods of data processing and analytics are bearing the risk of unconventional sudden disrupting due to breakthrough information generating technology and related new business models (Kieser, 2009). At present this industry is witnessing a set of never before kind of unique challenges. On the basis of 'information' all most every business consume information thus business research industry has never ending opportunities but on the other hand every business is developing customized and automated

¹Ajay Kumar Garg Institute of Management, Ghaziabad, Uttar Pradesh, E-mail : ritesh@akgim.edu.in

²Ajay Kumar Garg Institute of Management , Ghaziabad, Uttar Pradesh, E-mail : Pankaj@akgim.edu.in

source of information to avoid the recurring cost of information. Consequently the competitive sphere of business research industry has expanded to such an exterminate horizon where the customers are becoming competitors. In such volatile business environment survival of research firms is largely derived from secrecy but adopting this route of success limits the promotion of products and services (Pfeffer, 2006) . Overall this industry is a quite challenging and discriminatingly engaged in nature. The business environment and related peculiarities of research industry adversely affected its relationship with academic institutions of professional education. Development of highly innovative business models, research products and services are at priorities of research organization catering to the research need of other businesses (Starkey, 2001). Against this most of the academic institutions are generating the talent knowing the basic and old advance methods of research and this resulting in the employable talent crunch in industry and employability of professional students a challenge for academic institution. This situation is the prime motivation for the present research study.

Trends are the consequences of development and these hints about their impending impact on the current and future practices related to a specific field. It is therefore essential to always have an eye on the emerging trends in order to take precautionary measures well in advance

either to safeguard from or to adopt the trends (Van Aken, 2005). Academic institutions of professional education are key sources of talent to industry hence these have to ensure that there should be congruence between talents related industry specifications and the courses included in a specialized professional program (Locke, 2002) . For this a viable course content delivery in classrooms is a must. This paper latently stress upon the necessity of exploring emerging trends in research industry catering to the needs of business organizations from academic view point with an intention to include the significant ones in syllabi of the course on business research methods. The basic nature of knowledge related to business research used by practitioners in industry and by the academicians in classroom is sourced to a specific terms and vocabulary hence industry and academic use a common language. Still gaps prevail because of the difference in their target audience which demands a different level of communication in their respective contexts (Van De Ven, 2007). Making students of research course relevant and job ready to serve business organizations engaged in the business of research is now on priority list of the academic institutions because plenty of job opportunities are offered by business research organizations in recent years. The bright job prospects in research industry motivate students to take the business research course more sincerely (Stewart, 2014). Following sections of this paper express the specific objective and

methodology of this paper, a versatile literature review developed by using diverse information documents and sources and a consequential discussion to address the inclusion of recent trends from industry into classroom discussion and content of course on business research methods.

2. RESEARCH OBJECTIVE

This paper is an attempt to connect the recent developments observed in the area of business research with specific reference to real time practices, methodology, technology and tools to the classroom content. Thus the sole objective of this paper is to appraise the promising research industry trends and existing course structure of business research methods in order to provide a discussion revealing how the inclusion of such trends in academic delivery of business research course can make students practically more relevant for business research organizations as well as improve the overall viability of the course. The research question attempt to answer is why exploration and adaptation of emerging trend in research industry are academically important with specific reference to the development of more competent talent which can serve business research organizations.

3. METHODOLOGY

This research study is purely exploratory in nature and incorporates the feature of desk research thus the nature of data and information of this study is partially

secondary with reference to literature review and partially primary with reference to the discussion part of this study. The present research was accomplished in three phases. The first phase embrace exploration of number of studies and articles published in various forms such as research papers, dissertations, essays, white papers, blog, online articles etc. have been studied during this study in order to analyze course objectives, learning outcomes and course content of business research methods. The second phase is an extension of exploration. A detailed assessment of trends happening in research industry was done with a focus on trends emerging in the areas of research methodology, research tools and techniques and new kind of research. The third phase was devoted to structure the discussion in a way that demonstrate the need of frequent course content revision due to quick changes taking place in the research practices in industry. The discussion raises some painful academic questions and tries to justify the gap between academic delivery and industry expectations on the basis of unavoidable and distinctive limitations of academics and industry.

4. LITERATURE REVIEW

4.1 Business Research: The academic chase practical and pragmatic point of view speculate that it is in the self-interest of research industry practitioners, researchers and academic institutions to close the relevance gap then only each will be

better able to achieve their goals (Rousseau, 2007). In the back drop of the situation described in the introduction part a review of how academics treat business research course was conducted. In the review of the syllabi disclosed that the main course objective was to provide in depth knowledge about research and to offer details about how to conceptualize and conduct research and how to select appropriate analytic method (Stewart, 2014). Following are the commonly described expected learning outcomes in most of the syllabi:

- Developed problem analysis skills and understanding of how to prepare research proposal
- Improved sensitivity of student toward the biases and limitations of different research design and data
- Comparative understanding of the different types of data, data source & data collection methods and measurement systems
- Students will be well verse about sampling and sample size determination
- Students will have workable skill of MS-Excel and SPSS
- Student shall critically evaluate the quality of evidences in published research

A brief detail about how the entire course will be delivered was specified in most of the syllabi under different headings. Observation of common course delivery methods suggested that the contribution of classroom lecture using audio visual aids of teaching account for approximately 70% to 75% of course coverage and selective case studies, term projects, research quiz and activity based assignments contribute to the rest. Many universities' syllabi proposed a common evaluation scheme but in many autonomous institutions a course specific evaluation scheme was also found. The common feature of evaluation scheme was that maximum marks were devoted to written exams and only ornamented low percentage of marks were devoted to the other means of evaluation (Wall, 2006).

4.2 Business Research: An industry hunt universities and institutions of higher education are supposed to be the creator and synthesizer of new concepts and knowledge (Pfeffer, 2006). However the contribution of research firms, consultancy companies and start ups in the development of new concepts and knowledge frameworks is much higher than academic institutions (Susan Albers Mohrman, 2010). The knowledge comprehended by academic institutions as a result of academic research efforts found to have limited utility for the industry research professionals and research organizations. This reflects disconnect

between academic and business world of research (Colm, 2012). Academic research mentors perhaps have brilliant conceptual understanding of research but industry professionals working in research domains criticize academic research of being out of touch from the changing business research practices and new technology driven research tools (Rudolph H.R, 1992).

Research industry professionals and organizations principally seeking for easily accessible, short and snappy, pragmatic and practical knowledge on how to get a quick yet relevant solution to a clients' research problem thus industry appreciate case based and action oriented research (Vermeulen, 2007). A review of job description related to entry level to middle level job profile clearly point out the lacunas between industry need and the academic delivery of research course content. Research organizations develop information based products and their development includes technology based platforms, computer programming based mathematical and statistical algorithms (White, 2015). In research industry those days gone away long back when research organizations sign long term contract with clients because clients are now dealing with more than one research organizations for various time bound research

projects. Thus most of research firms are driving their business revenue from project based contracts. This has enforced the research firms to have highly competent research professionals as their strength of manpower directly affects their very survival in the industry. Research firms are now not looking for ready to work people who can perform after a short term on the job training. In fact these are seeking for ready to deliver without training kind of people.

Online business models and internet based technology with highly economic availability has revolutionized the research need of businesses consequently business research is also undergoing a revolution hence traditional research methods are hybridized with online research possibilities. This again creates a need of professionals who can handle research projects online with the same level of effectiveness with which they handle offline research projects. Data collection software and online platforms have significantly reduced the demand of people for field work. At the same time application of technology like Radio Frequency Identification (RFID), Quick Response (QR) codes, Bluetooth and Bluetooth Low Energy Beacons (BLE Beacons) etc. in data collection in various other kind of interaction with respondent has

significantly impacted the need of field workers and also have created the job for the professionals having skills in these areas.

5. DISCUSSION

A close comparative understanding of research industry need of talent and the academic preparation to embellish students as per current need magnify the 'relevancy gap' of talent developed by academic institutions for research industry and demand of research organizations (Vermeulen, 2007). This has raised some painful questions and following discussion is drafted in such a way that it addresses these questions as well as includes significant emerging trends related to business research so that the relevancy gap can be locked well in time and a long term symbiotic relation between industry and academics can be expected.

5.1 Whether we want to connect course content and overall structure of course with the industrial practice?

The first painful question that all faculty teaching researchers must answer is whether they aspire to connect their course content and overall structure of course to industrial practice (Susan Albers Mohrman, 2010). A student of research can perform effectively only when academic delivery of business research course equipped him or her with the knowledge which is useful for research firms and make student

comfortable in providing solution to the problem at hand (Stewart, 2014). Now the issue is that the content of business research methods course is by and large developed, delivered and evaluated by academicians only and the representation from industry is either completely missing or if included the its contribution is limited to one or two guest lecture by industry expert.

5.2 Industry Trend: from descriptive to perspective

One of the important trends that this study observed is that industry people are dealing with a complex level of research design and research output while academic research training is far away from this level. The course content of business research mainly aim for spreading awareness about research methods and methodologies however industry is working with the research practices that aim for extracting evidences from data (Ferguson, 2005). Academicians bearing the responsibilities of a research mentor must put steps forward to make the course content enriched by including advanced statistical techniques, software and most importantly by changing the approach of problem formulation for a research need. Academically trained and industry experienced professionals are generally found different because of their approach

toward a research issue. Academically trained professional is much concerned with appropriateness of research design, sampling method, statistical testing technique, type of data required and its source etc. and would plan an impressive analysis that can offer a good description but would not go beyond usual variables and general analysis to dissect research issue into practically important concerns that must be addressed to bring a workable research driven perspective and its more that the direct application of research knowledge.

5.3 Academic deception due to course nomenclature

Syllabi of various central, state universities approved autonomous colleges and deemed universities considered in this paper reveal the facts that the name of the course is varying to the extent that it deceives students and thus causes a lesser interest among many students. For example in many institutions the course on research was included as a core course with a title 'Marketing Research' in first year of the master degree or diploma level management program. The name does not motivate students going to opt specialization in human resource or finance or operations management. Research is an area which opens job opportunities in almost all kinds of specializations but many institutions offer course on

advance research only under electives of marketing and this further limit the students in thinking about career in research.

5.4 Big Data

In the past decade business intelligence has revolutionized and superseded the areas of business research. The data collection has become very quick resulting explosion of data and finally data is now become big data (Colm, 2012). Spreadsheets sent to backseat for actionable part to play while insightful data visualizations are projected through interactive business dashboards. The generation of huge data on daily basis has created a situation where researchers are using more sophisticated analytics to manage and mine the avalanche of data. Though big data is directly linked to statistics, mathematic and related interpretation but the structuring of big data largely dependent on the tools of research methodology (White, 2015). Hence it is the right call if at least basics of big data are included in the course of business research (White, 2015).

5.5 Predictive analytics

One of the popular services in research industry is extracting information from existing data sets in order to forecast future probabilities. Every firm collect tons of transactional data on daily basis and effective and goal

based mining of such data can reveal important information. Predictive analytics point out what may turn out in the future within a reliability limit and it also deals with framing some alternative future scenarios along with related risk estimation (Stewart, 2014). Predictive analytics is used to analyze current data and historical facts in order to better understand customers, products and partners and to identify potential risks and opportunities for a company. Unexpectedly predictive analytics is not given enough space in course of business research (Susan Albers Mohrman, 2010). Though some basic predictive techniques like simple regression is included in almost all syllabi. Keeping in view the way industries harness predictive analytics a detailed course structure has to be included in academic business research course.

5.6 Web Analytics and terminology

So far web analytics is considered as a part of digital marketing hence it has absolute absence in business research course in academics. However web analytics as well as social media analytics are trending in most of job profile of research and analytics (Colm, 2012). Off course the terminology, the tools and matrices of web analytics has complete new order but students of business research must be delivered the content about internet related analytics.

6. CONCLUSION

It is in the self- interest of practitioners and researchers to close the relevance gap, because each will then be better able to accomplish their purposes. Industry has expectations that professional schools will deliver knowledge that can be used in practice but in absence of relevant knowledge the professional graduates can't be absorbed by the industry. This research study propose that including one course on business research as core will not produce useful talent for industry. Offering research as separate specialization like Business analytics or Business intelligence or Data and decision making modeling etc. is failing to attract enough number of students to run the specialization classes. It is therefore this study propose that due to pervasive nature of research requirement it would be more feasible if every specialization include specialization specific electives of business research methods and methodologies. So many concepts with so much speed is changing in the field of business research that only updation in one core course of business would not solve the issue hence a regular watch on industrial trend is essential for bridging the relevancy gap related to talent. Every content in the course has to be evaluated to answer the question that how long this content can make student relevant to serve research industry. Academics take a safe side commenting that it prepare students not for immediate engagement but also to make them appropriate for the future roles in industry. Hence, including every trend directly from industry into course

curriculum is not possible. This research find that such opinion are developed due to the deficiency of a ecosystem where the limitations of academic as well as over expectations of industry address in such a creative way that in any case always benefit the students .

REFERENCES

- [1]. Carr, G. N. (2000). Hypermediation: Commerce as Clickstream. Harvard Business Review
- [2]. Colm, K. (2012). Emerging markets research: Trends, issues and future directions . Science direct :Emerging Markets Review , 159–183.
- [3]. Ferguson, J. E. (2005). Bridging the gap between research and practice . www.km4dev.org/journal , 46-54.
- [4]. Jobber, D. (2007). Principles and Practice of Marketing. (5th, Ed.) Europe: McGraw-Hill Education .
- [5]. Kieser, A. a. (2009). Why the rigour–relevance gap in management research is unbridgeable. *Journal of Management Studies* , 516–33.
- [6]. Locke, E. A. (2002). The epistemological side of teaching management: teaching through principles . *Academy of Management Learning and Education* , 195-205.
- [7]. Peppers, D. &. (1993). The One-To-One Future.
- [8]. Pfeffer, J. a. (2006). Hard Facts, Dangerous Half-Truths and Total Nonsense: Profiting from Evidence-Based Management. Harvard Business School Press Boston .
- [9]. Rousseau, D. M. (2007). A sticky, leveraging, and scalable strategy for high- quality connections between organizational practice and science. *Academy of Management Journal*, 1037– 1042.
- [10]. Rudolph H.R, P. J. (1992). Significance of usefulness: a congruency model of relevant research criteria, . *Journal of Applied Business Research*, 83–91.
- [11]. Starkey, K. a. (2001). Bridging the relevance gap: aligning stakeholders in the future of management research . *British Journal of Management-Special Issue*, S3–26.
- [12]. Stewart, C. (2014, November). *Latest Emerging Trends in Market Research*. Retrieved 2016 , from www.greenbookblog.org.
- [13]. Susan Albers Mohrman, E. E. (2010, November). *Mohrman-Research for Theory and Practice*. Retrieved 2016, from www.hbs.edu: <http://www.hbs.edu/faculty/Lists/Events/Attachments/136/Mohrman-Research%20for%20Theory%20and%20Practice.pdf>
- [14]. Van Aken, J. E. (2005). ‘Management research as a design science: articulating the research products of mode 2 knowledge production in management. *British Journal of Management*, 19–36.
- [15]. Van De Ven, A. H. (2007). Engaged

Scholarship: A Guide for Organizational and Social Research. Oxford: Oxford University Press.

- [16]. Vermeulen, F. (2007). 'I shall not remain insignificant': adding a second loop to matter more. *Academy of Management Journal*, 754-761.
- [17]. Wall, T. (2006). 'Is JOOP of only academic interest?'. *Journal of Occupational and Organizational*

Psychology, 161–175.

- [18]. White, J. (2015, March). *Trends in Qualitative Research – Ignore At Your Own Peril*. Retrieved 2016, from www.greenbookblog.org: <http://www.greenbookblog.org/2015/03/20/5-trends-in-qualitative-research-ignore-at-your-own-peril/#>

Blockchain Technology Integration in Indian Supply Chain and Logistics Ecosystem

Nikhil Singh¹
Dr. Smriti Asthana²

Abstract

Blockchain is a distributed ledger technology which aggregates multiple users to a single platform improving transparency, trust and security in the closed network of participants. The implementation of the technology requires a thorough knowledge of crypto currency background along with hefty investment of resources and alliance with many partners to conduct a continuous business flow, as a result, most of the organizations outsource the development and administrative part of the platform to other competent organizations engaged in this field to customize the services as per their requirements.

This research paper explores a brief technical background of the blockchain technology and emphasizes its application in supply chain and logistics domain. The analysis comprises of a survey report which evaluates adoption of the technology by various professionals from numerous organizations and their perception corresponding to the parameters affecting its implementation curve in supply chain and logistics sector. It also depicts a brief description about the organizations which have commissioned proof of concept projects to exploit the technology and improve their system performance through integration of the technology. This research paper rationalizes the future aspects and constraints of application of block chain technology in supply chain and logistics for a better coordination of the process with the stated awareness.

Keywords: *Block chain, Supply Chain Management, Integration, Industry 4.0, Technological disruption*

1. INTRODUCTION

The present day Supply Chain (SC) is a complex network of company interactions and products movement that covers multiple locations across multiple countries at times (Chain Business Insights, 2017). These interactions and activities need to be planned in a way to satisfy all the parties involved – customer demand and

tactical and strategic goals of business partners met.

In 2008, Satoshi Nakamoto invented a revolutionary system of distributed currency implemented on the platform of blockchain technology (Sadouskaya, 2017). The first application of the system was Bitcoin, a cryptocurrency adopted as first decentralized worldwide payment system

¹Nikhil Singh, Research Scholar, CII School of Logistics, Amity University

²Dr. Smriti Asthana, Assistant Professor – Supply Chain and Logistics, CII School of Logistics, Amity University, Noida.

Email: asthana_smriti22@yahoo.co.in

by many societies. The success of Bitcoin made scientists and developer to channelize the use of the platform in various fields like cyber security, real estate, networking, internet of things, insurance, healthcare, supply chain and logistics.

Blockchain is a revolutionary paradigm in software technology for the global society and the Internet of Things. It is a software that comprises of other technologies including data storage, distribution and

synchronization, cryptocurrency and identity (Chain Business Insights, 2017). Blockchain technology is different from traditional technology in a way that each party involved in the process has record of transaction of an asset from its origin till the last mile throughout its complete life time. Thus, reducing time and effort for creating multiple copies of transaction for each party and withholding the genuineness of the asset which each party can review.

TRADITIONAL TECHNOLOGY

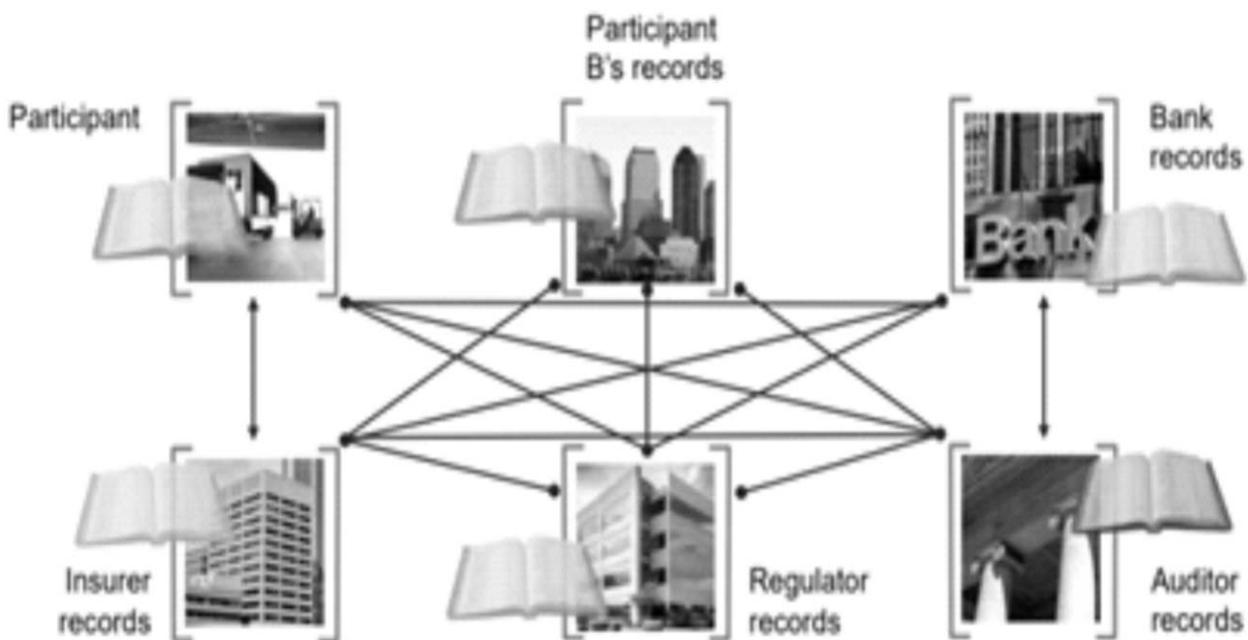


Figure 2.1 (Source: IBM Blockchain Foundation for Developers)

BLOCKCHAIN TECHNOLOGY

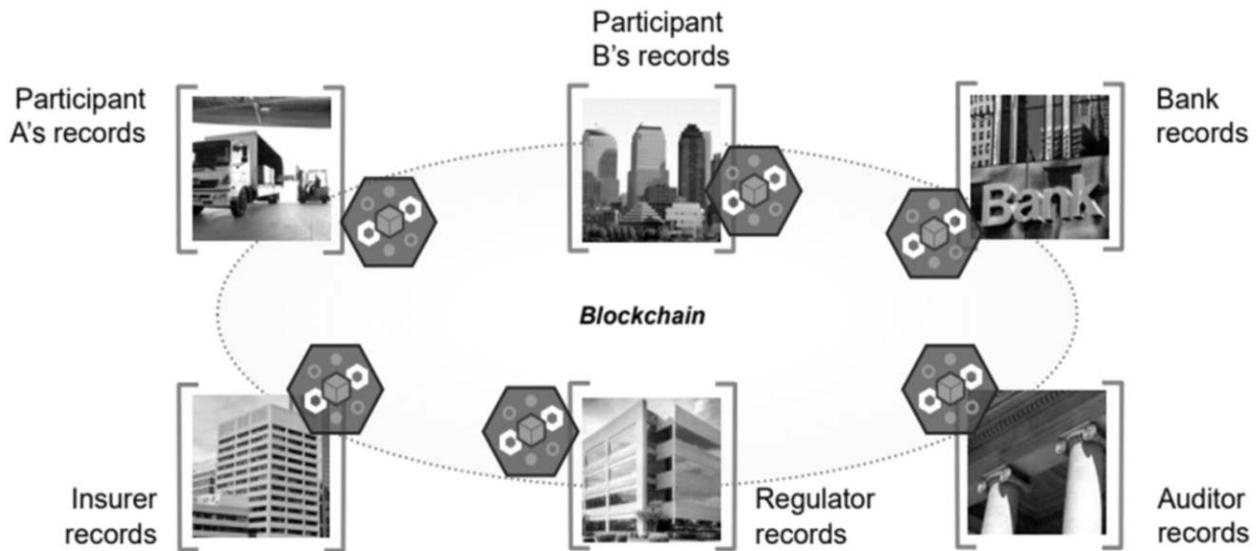


Figure 2.2 (Source: IBM Blockchain Foundation for Developers)

2. LITERATURE REVIEW

Supply Chain (SC): A complete system of stages interlinked in serving customers or clients. It contains suppliers that provide raw material, manufacturers who transform the raw material into finished goods, warehouses that store, distributors that deliver to the retailers, and retailers who deliver the products to a definitive customer.

Supply chains underlie value chains in light of the fact that, without them, no manufacturer can give customers what they need, when and where they need and at the value they need (Malapit, 2015). It typically involves exchange of products, information and rewards among various involved parties in the system (Lambert et al, 1998).

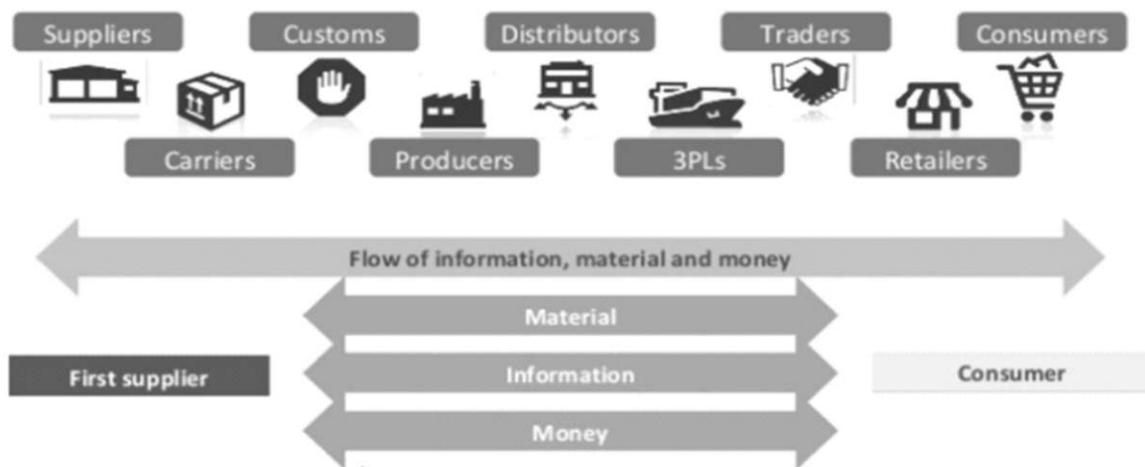


Figure 3.1: Supply Chain Process Flow

Authors Definition of Supply Chain Management (SCM)

| Author | Definition of SCM |
|---------------------------|---|
| Jones and Riley (1985) | An integrative approach to deal with the plan and control of the material flow from suppliers to end-users. |
| Ellram (1991) | A network of firms that interact to deliver a product or service to an end customer and to link flow from raw material supply to the final delivery. |
| Christopher (1992) | A network of organizations that are involved through upstream and downstream links in the different processes and activities that produce value in the form of ultimate consumer products and services. |
| Lee and Billington (1992) | Networks of manufacturing and distribution sites that procure raw materials, transform them into intermediate and finished products, and distribute the finished products to customers. |
| Berry et al. (1994) | Supply chain management aims at building trust, exchanging information on market needs, developing new products, and reducing the supplier base to a particular OEM (original equipment manufacturer) to release management resources for developing meaningful, long term relationships. |
| Saunders (1995) | External chain is the total chain of exchange from the original source of raw materials, through the various firms that are involved in extracting and processing raw materials, manufacturing, assembling, distributing, and retailing to ultimate customers. |
| Lee and Ng (1997) | It is a network of entities that starts with the suppliers' supplier and ends with the customers' customer; the production and delivery of goods and services. |
| Cooper et al., (1997) | SCM comprises a set of beliefs that each supply chain firm directly and indirectly affects the performance of all of the other supply chain members and the overall performance of the channel. |
| Tan et al. (1998) | Supply chain management encompasses materials or supply management from the supply of basic raw materials to final product (and possibly to recycling). |

Blockchain Technology (BT): A blockchain is essentially a distributed database of records or public ledger of all transactions or digital events that have been executed and shared among participating parties (Wright, 2015). Each transaction in the public ledger is verified by consensus of a majority of the participants in the system and, once entered, information can never be erased (Crosby, Nachiappan, Pattanayak, Verma and Kalyanaraman, 2015).

BT is a registry and inventory system for recording, tracking, monitoring, and transacting of all assets (Swan, 2015).

According to Kakavand et al. (2016) Blockchain consists of following fundamental concepts which operate as an entity to provide blockchain platform.

- **Asset:** It is an object or property which has certain value associated with it. eg: currency, land, machine, finished goods, documents, raw materials etc.
- **Network:** It is an array of participants involved a business activity through a common platform.
- **Node:** It refers to device of the respective participant connected to the network.
- **Block:** It is a group of transactions collected by nodes into a bundle. To be valid blocks must be formed according to pre-determined set of rules: They must not exceed a

maximum size in bytes, contain more than a maximum number of transactions, and must reference to the most recent valid block (Sadouskaya, 2017).

- **Ledger:** It is digital record that is embedded in the blockchain business network.
- **Transaction:** It is the process through which an asset is transferred onto or off the ledger between two participants of the network
- **Smart Contract:** It is set of terms and conditions lodged in the network for a participant to perform or approve or realize a transaction.
- **Privacy:** An attribute which provides visibility of transaction to involved participants in the network.
- **Membership Services:** A component of the network which enables access to security certificates.
 - I. **E- Certificates:** These are enrollment certificates which carries identity of the participants.
 - II. **T- Certificates:** These are transaction certificates which are utilized during a transaction by a particular participant.
- **Wallet:** An attribute that stores membership certificates.
- **Hyperledger Fabric:** Hyperledger fabric is an implementation of a

distributed ledger platform for running smart contracts, leveraging familiar and proven technologies, with a modular architecture allowing pluggable implementations of various functions (Cachin, 2016).

- **Hyperledger Composer:** The hyperledger composer is a collaborative effort to create an enterprise-grade, open-source distributed ledger framework and code base. It aims to advance blockchain technology by identifying and realizing a cross-industry open standard platform for distributed ledgers, which can transform the way business transactions are conducted globally (Cachin, 2016).
- **Model File:** It constitutes of details regarding assets, transactions and participants involved in the network.
- **Script File:** It consists of smart contract or logic which validates certain transaction.
- **Access Control Rules:** It determines the access to transactions among various participants in the network.
- **Metadata:** It resides the vital information about the name, version, and description regarding the network.
- **Application Programming**

Interface (API): It is the communication link between two nodes which connects user to the system.

There are many participants involved in a blockchain business network. Some major members are described below:

- **Architect:** An architect of the blockchain designs the network and is responsible for security, resilience and performance platform.
- **Developer:** A developer creates a blockchain application according to requirements of the end user and embeds smart contract which validates each transaction.
- **Operator:** An operator focuses on participants involved, general consents of the members (consensus) and security of the network.
- **User:** A member of the blockchain network which uses the application to conduct a business to business transaction.

Since supply chain of an organization is a complex network of various parties which have specified roles to function in the network, BT can resolve this complexity by involving each party as per their functional roles in a transaction on a common platform. A simple illustration below will help to identify the concept of blockchain resolving supply chain issues.

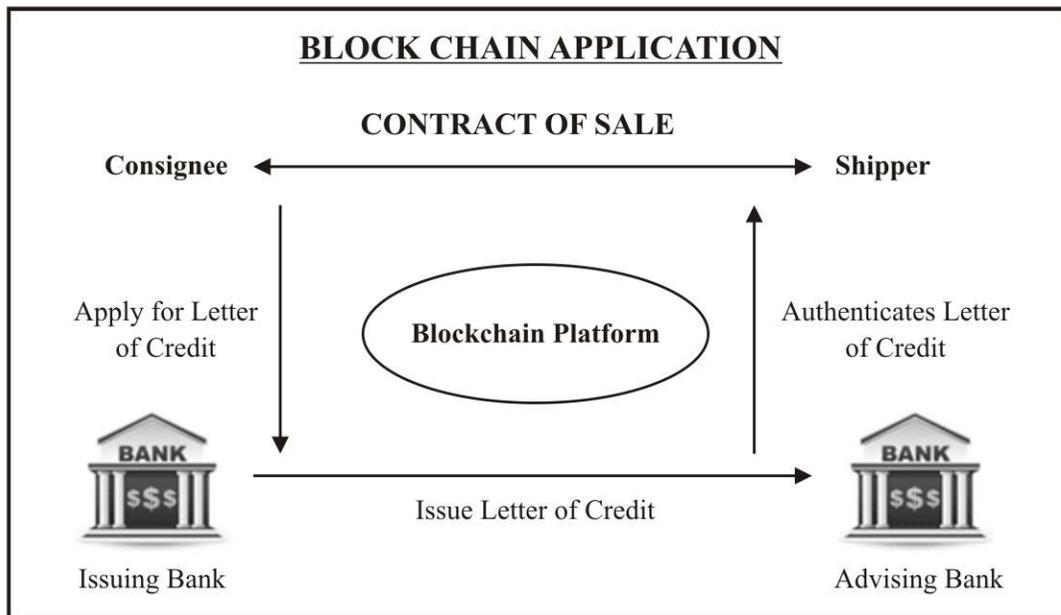


Figure 3.2: Supply Chain Process Flow

Figure 3.2 depicts a typical system where an export sales contract of a consignment occurs between a shipper and a consignee involving two banks of respective parties. The sales contract requires the consignee to apply for letter of credit to issuing bank. The bank issues the letter of credit to advising bank which in turn, present the documents to shipper at the end. The lead time for the system is few weeks on an average. With blockchain platform such transaction can be implemented through a shared reference data attribute which will consists of a unique routing number for each bank and asset can be transferred in almost real time. Thus, reducing time and cost involved in the supply chain process.

The usage of private Blockchains gives the ability to determine the availability of any participant in the network to keep its information private (Swan, 2015).

Integration of Blockchain in Supply chain and Logistics

With technological disruption taking place the SCs and operations are becoming increasingly dynamic. Product lifecycles are shorter, and ramp-up and ramp-down periods are more intense. Co-ordination among different activities is one of the key challenges faced in the supply chains. Activities like reducing cost, increasing service levels, reducing the bullwhip effect, better utilization of resources at suppliers, manufacturers, distributors and retailers level in the supply chain (Sharma.S, 2015). For SC to be effective and efficient, it is imperative that all the activities are properly integrated. Better visibility into procurement, more accurate and reliable data for analytics, and increased trust among all participants in the SC chain network are some of the benefits of adding blockchain to

SC infrastructure.

With block chain integration, every time a product changes hands, the transaction could be documented, creating a permanent history of a product, from manufacture to sale (Vorabutr. J A, 2016). This would help in reducing time delays, added costs, and human error that majorly affect the supply chain transactions today.

3. RESEARCH METHODOLOGY

3.a. Objective of the Study

The objective of the research paper is to understand the technical background and application of the blockchain technology and emphasize its application in supply chain and logistics domain in India. The research paper also focuses on identifying corporate examples where BT has been implemented and exploits its capabilities to reduce lead time, overhead costs in a supply chain network.

3.b. Research Approach

The case study based exploratory research has been used in the research paper to explore the use cases of the BT in Indian supply chain environment, which is believed to be redundant towards technology adoption as compared to Western part of the world. This report is based on secondary sources and data is majorly collected from various website, research papers and news articles.

Mahindra Group

The Indian originated giant is currently operating in various verticals from automotive, finance, defense to farm equipment, real estate and information technology. Mahindra Group recorded a sales turnover of ₹ 48,685.55 crores in fiscal year 2017-2018 (ET market, accessed on Jan 07, 2019) and to improve the transparency and visibility in its supply chain adopted blockchain technology in its internal work frame.

Bajaj Electricals Limited

The organization is a part of Bajaj Group with total revenue of ₹ 4298 crores as per financial year data of 2016-2017 (ET market, accessed on Jan 07, 2019). It majorly deals in consumer products including home appliances, fans, lighting with other verticals like power distribution, transmission towers. For such a vast organization blockchain technology can resolve many complexities and improve the bottom line of the organization.

Apart from the above - mentioned organization, a survey data helps us realize the adoption trend of the technology in Indian pharmaceutical industry which requires transparency and trust for holding transactions between parties by virtue of the products and their high cost of carrying inventory.

The report also depicts Indian startup and

established organizations which emerged as solution providers with this technology platform to provide solutions to supply chain industry.

4. DATA ANALYSIS & FINDINGS

This section consists of the case analysis of blockchain implementation in organizations as discussed in the methodology section. A survey on adoption of the technology in the pharmaceutical industry and various organizations which have the ability to support such solutions to integrate with the current supply chain model have also been highlighted through findings and analysis of the study.

a. Mahindra Group

Mahindra Group is working on currently 7-10 business projects based on blockchain platform in its different vertical regimes. The firm has commissioned a global incubation center to encourage start-ups to assist them develop new solutions on the new cloud technology.

Mahindra Finance started developing the a blockchain solution with IBM in year 2016 to resolve supplier and manufacturer issues on trade finances and improve the system in the aspects of

transparency, security and invoice discounting process (Tech Mahindra to set up Blockchain centre within R&D arm, accessed on January 07, 2019).

While Tech Mahinda, an Indian IT firm in the year 2017 developed a proof of concept for vehicle registration based on blockchain platform. Under this project the dealer can issue registration certificate and vehicle number, thus reducing the lead time for the customer to visit Road Transport Authority office to issue the same. This will enhance the customer experience. The state government of Hyderabad is willing to execute such platform after subsequent trials in future.

b. Bajaj Electricals Limited:

Bajaj Electricals Limited incorporated the blockchain technology in the year 2016 and went live on the project of vendor financing in January 2017. The organization was facing issues to clear short-term liabilities of the suppliers which is an inefficient process in the light of Indian ecosystem. The firm had a joint venture with Yes Bank to operate its finances in a closed loop system on the blockchain platform involving

the suppliers and the parent organization. Yes Bank tied up with Cateina Technologies to develop the smart contract on Hyperledger platform for various transactions using cloud resources of tech giant IBM. This enabled Bajaj Electricals Limited to integrate its Oracle based invoice system with blockchain platform of Yes Bank to clear financial debts. The project execution helped the firm to reduce the process cycle of the system from 4-5 days to almost real time (How Bajaj Electricals uses blockchain to

pay suppliers, Last accessed on January 08, 2019). The new platform also aided the firm to save overall 70% of the cost with payback period of 6-8 months. The balance sheet data of the organization verifies the significant reduction in trade payables from fiscal year 2015-2016 to 2016-2017 (money control.com, last accessed on December 24, 2018). Such a system will also encourage the discounting system of the firm as the suppliers are getting paid in real time.

| Bajaj Electricals | | Previous Years » | | | | |
|--------------------------------------|-----------------|------------------------|-----------------|-----------------|-----------------|--|
| Standalone Balance Sheet | | ----- in Rs, Cr. ----- | | | | |
| | Mar 17 | Mar 16 | Mar 15 | Mar 14 | Mar 13 | |
| | 12 mths | 12 mths | 12 mths | 12 mths | 12 mths | |
| EQUITIES AND LIABILITIES | | | | | | |
| SHAREHOLDER'S FUNDS | | | | | | |
| Equity Share Capital | 20.26 | 20.19 | 20.15 | 19.99 | 19.95 | |
| Total Share Capital | 20.26 | 20.19 | 20.15 | 19.99 | 19.95 | |
| Revaluation Reserves | 0.00 | 7.86 | 8.09 | 8.30 | 8.56 | |
| Reserves and Surplus | 851.24 | 723.44 | 658.75 | 680.80 | 700.13 | |
| Total Reserves and Surplus | 851.24 | 731.31 | 666.83 | 689.09 | 708.69 | |
| Total Shareholders Funds | 871.50 | 751.50 | 686.98 | 709.09 | 728.64 | |
| Equity Share Application Money | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | |
| NON-CURRENT LIABILITIES | | | | | | |
| Long Term Borrowings | 16.95 | 95.98 | 170.91 | 130.61 | 34.54 | |
| Other Long Term Liabilities | 75.02 | 14.16 | 11.13 | 0.33 | 0.06 | |
| Long Term Provisions | 13.39 | 44.71 | 43.94 | 27.54 | 24.76 | |
| Total Non-Current Liabilities | 105.37 | 154.84 | 225.98 | 158.48 | 59.36 | |
| CURRENT LIABILITIES | | | | | | |
| Short Term Borrowings | 528.58 | 100.94 | 215.97 | 213.74 | 125.44 | |
| Trade Payables | 630.21 | 1,145.24 | 1,174.72 | 1,199.69 | 982.32 | |
| Other Current Liabilities | 879.38 | 656.70 | 450.60 | 346.20 | 208.15 | |
| Short Term Provisions | 65.53 | 69.78 | 75.46 | 64.93 | 53.39 | |
| Total Current Liabilities | 2,103.70 | 1,972.67 | 1,916.74 | 1,824.56 | 1,369.31 | |
| Total Capital And Liabilities | 3,080.57 | 2,879.00 | 2,829.71 | 2,692.63 | 2,157.31 | |

Figure 4.1: Bajaj Electricals Limited Balance Sheet (Source: moneycontrol.com)

The above figure depicts that there is 44.97% decrease in trade payable of the company as per horizontal analysis of the balance sheet between 2017 and 2016 as compared to 2.51% and 2.08% in preceding years i.e. 2016 and 2015, 2015 and 2014 respectively. This is clearly an opportunity cost of ₹ 515.03 crores that can be invested in other assets.

c. Pharmaceutical Sector

The supply chain of pharmaceutical industry requires traceability and security at the eminent level due to the nature of product and high inventory carrying cost. The high quality of raw materials required and cold storage facilities adds to overall cost for the value chain. A report of Associated Chambers of Commerce of India (ASSOCHAM) revealed that 25% drugs in Indian market are imitated from original manufacturers. According to World Health Organization (WHO), 50% results of

clinical trials on drugs are not reported which mark a serious concern globally.

In a survey conducted by Pistoria Alliance Incorporation involving 120 pharmaceutical and life science executives, 83% are optimistic to integrate blockchain technology in the supply chain of their organization in a period of next five years while 68% agree to fact that it will impact security of supply chain drastically (Kamat, 2017).

d. Solution Providers

For encouraging the cloud technology many Indian companies have involved themselves to provide solution to other organizations in terms of improving their supply chain capabilities. Few organizations are depicted below which are specialized in strengthening the value chain through blockchain technology.

| SNo | Organizations | Based At |
|-----|---------------------------------|-----------|
| 1 | Prime Technologies | Pune |
| 2 | Elementials Labs | Mumbai |
| 3 | Sofocole Technologies | Delhi |
| 4 | Cateina Technologies | Mumbai |
| 5 | Auxesis Services & Technologies | Mumbai |
| 6 | Accubits Technologies | Kerala |
| 7 | Somish Solution | Delhi |
| 8 | Statwig | Hyderabad |

Table 4.1: Service Providers of Blockchain Technology in India

5. FUTURE SCOPE

The technology is at a nascent stage although with formation of consortiums to exploit the technology in the field of supply chain and logistics many proofs of concept projects have been executed with positive results across the globe which are as follows:

- I. Maersk IBM alliance for execution of container shipment of Schneider Electric products.
- II. Hyundai Merchant Marine execution of freight consignment voyage.
- III. Antwerp Port, Belgium security process improvement.
- IV. Walmart IBM collaboration for traceability of perishable products.

With Indian government pushing blockchain technology in fiscal budget of 2018-2019 and adoption of technology by major banks like Reserve Bank of India, ICICI Bank, Axis Bank, Yes Bank etc, it will be interesting to see the acknowledgment of Indian industry to integrate it in their existing supply chain in future and absorb the benefits to maximize the bottom line of their respective organizations. The major parameters of supply chain which can be affected by implementation of the technology include flow of transactions, consignment traceability, customer experience, security of the network, response time and

documentation procedures.

The future research study can be conducted on areas like Intel's hyper-ledger sawtooth enterprise and concept of quantum blockchain network.

6. LIMITATIONS

In theory, the blockchain can work, but supply chains are very hard to change and adapt. (Mougayar, 2016, 123). Mougayar thinks, that companies spend years putting supply chains in place and refining them. It is not very easy to insert a new technology inside established supply chain systems because the integration challenges are not to be underestimated.” (Mougayar, 2016, 124-127).

The core of the technology is based on cryptography which requires a skilled professional to develop and mold the smart contracts into real time services. The key to execution of such network is privacy as the data is strictly required to shared only be permissioned members for a particular transaction. The cost for implementation of the cloud technology is exorbitant. Network should be agile and resilient as whole system will be dependent on it. Availability of data sources and appropriate data was a hindering factor as Indian Supply chain industry is at a very nascent stage in the integration and implementation on Blockchain Technology.

7. CONCLUSION

As the environment for supply chain industry in propagating dynamically, organizations are required to adopt the latest technology to cater to their customers and compete with other members in the sector. Integrating blockchain technology can radically change the traditional processes of an organization concerned with their supply chain and can provide an edge over the competitors with benefits like increased compliance and transparency, efficient and effective tracking and traceability, reduction in errors in auditing and payment processing resulting in enhanced customer trust, but on the other side it requires financial investments and support from various government departments along with members of the network like freight forwarders, suppliers, carriers and others to implement the shared ledger technology. With the global industry moving towards technological disruption and Industry 4.0, implementation of blockchain technology will be a way of improving and connecting the Internet of Things and other industries.

8. REFERENCES

- a. Aitken, R. (2017, August 25). IBM Forges Blockchain Collaboration with Nestlé & Walmart in Global Food Safety. Retrieved January 14, 2018, from <https://www.forbes.com/sites/rogeraitken/2017/08/22/ibm-forges-blockchain-collaboration-with-nestle-walmart-for-global-food-safety/#742680803d36>.
- b. Malapit, A. (2015) Supply Chain Management: What Does It Really Mean? <https://www.handshake.com/blog/supply-chain-management>, Accessed on December 11, 2018.
- c. Cachin, C. (2016, July). Architecture of the Hyperledger Blockchain Fabric. Retrieved January 21, 2018, from https://www.zurich.ibm.com/dccl/papers/cachin_dccl.pdf.
- d. Crosby, M., Nachiappan, Pattanayak, P., Verma, S., Kalyanaraman, V. (2015, October 15). Blockchain Technology, Retrieved January 30, 2018, from <http://scet.berkeley.edu/wp-content/uploads/BlockchainPaper.pdf>.
- e. Castillo, M.D. (2017, March 06). The World's Largest Shipping Firm Now Tracks Cargo on Blockchain. Retrieved January 8, 2018, from <https://www.coindesk.com/worlds-largest-shipping-company-tracking-cargo-blockchain/>.
- f. Castillo, M.D. (2018, January 31). Hyperledger Sawtooth Is Ready for Business Use. Retrieved April 12,

- 2018, from <https://www.coindesk.com/intels-hyperledger-blockchain-now-ready-business/>.
- g. DeConvny, S. (2017. May). Blockchain in Supply Chain Edging Toward Higher Visibility Benchmark Survey. Retrieved January 22, 2018, from <https://www.chainbusinessinsights.com/blockchain-in-supply-chain-edging-toward-higher-visibility-survey.html>.
- h. ET Market, <https://economictimes.indiatimes.com/mahindra-&-mahindra-ltd/yearly/companyid-11898.cms>, Last Accessed on January 07, 2019
- I. Gorman, D. & Cole, A. (2018, Jan. & feb.). IBM Blockchain Foundation for Developers. Retrieved February 05, 2018, from <https://www.coursera.org/learn/ibm-blockchain-essentials-for-developers/>
- j. Kakavand, H., Kost De Serves, N., Chilton, B. (2016), The Blockchain Revolution: An Analysis Of Regulation And Technology Related To Distributed Ledger Technologies. [pdf]. Available at: <http://www.fintechconnectlive.com/wp-content/uploads/2016/11/Luther-Systems-DLA-Piper-Article-on-Blockchain-Regulation-and-Technology-SK.pdf> [Accessed 02 Apr. 2017].
- k. Lambert D. M. Cooper M. C. Pagh J. D. (1998) Supply Chain Management: Implementation Issues and Research Opportunities. The International Journal of Logistics Management, 921190957-4093
- l. Sadouskaya, K. (2017, April). Adoption of Blockchain Technology in Supply Chain and Logistics. Retrieved January 09, 2018, from <https://www.theseus.fi/bitstream/handle/10024/126096/Adoption%20of%20Blockchain%20Technology%20in%20Supply%20Chain%20and%20Logistics.pdf?sequence=1>.
- m. Swan, M. (2015) Blockchain. 1st ed., Sebastopol: O'reily Media.
- n. Tech Mahindra to set up Blockchain centre within R & D arm http://economictimes.indiatimes.com/articleshow/64855887.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppsthttps://economictimes.indiatimes.com/tech/ites/tech-mahindra-to-set-up-blockchain-centre-within-rd-arm/articleshow/64855887.cms
- o. Vorabutr. J A, (2016), Why Blockchain is a Game Changer for Supply Chain Management Transparency, https://www.supplychain247.com/article/why_bl

ockchain_is_a_game_changer_for_the_supply_chain, Retrieved January 3, 2019

- p. X., Zeng. (2017, September 07). HMM completes first blockchain pilot voyage. Retrieved January 20, 2018, from <https://fairplay.ihs.com/container/article/4291331/hmm-completes-first-blockchain-pilot-voyage>.

com/container/article/4291331/hmm-completes-first-blockchain-pilot-voyage.

A Study on the Financial Forecasting Techniques on Capital Structure of the Indian Company: A Study of Pattern Analysis with the Help of Model

Prof. (CS) Amit Kumar¹

Abstract

Purpose/Aim: Investigating the uses and forecast analysis of financial forecasting techniques on capital structure

Methodology:

Descriptive research design

Non-probability sampling (convenience sampling)

Tools:

- Model Valuation
- Regression Analysis(Dependent : WACC/EFN/Value of Firm & Independent: Debt/Equity)
- Forecasting Method

Sample: Data from Online Financial Sources of Top Ten Indian Industry on the basis of market size

Source of Data: Secondary data (Quantitative data)

Implications: This study will contribute to the management about the working of financial forecasting on past and how past data can be relevant to predict the future trend about company.

This research will also consider three models of forecasting of financial figure to predict/forecast a figurative model and also check the variances.

This research is based on the Indian Corporate Houses considering top ten industry on the basis of market size as on 1st May 2018.

Uniqueness of this research is to evaluate the effectiveness of model under certain constraints

Keywords: Capital Structure, Debt, Equity, EFN, WACC

INTRODUCTION

‘Forecast’ means to form an opinion beforehand i.e. to make a prediction. Thus financial forecasting means a systematic projection of the expected action of finance through financial statements. It is needless

to mention that such forecasting needs past records, cash flow and fund-flow behavior, the applications of financial ratios etc. along with the industrial economic condition. It is a kind of plan which will be formulated at a future date for a specified period.

¹Assistant Professor - School of Management & Commerce, K R Mangalam University

Financial statements forecasting either in a full-scale or in a reduced form is an indispensable tool for estimation both financial and non-financial activities. The financial statements forecasts are often used for different financial applications: capital budgeting, equity valuation, financial strategy development, financing decisions, value-based management etc. For instance, the business valuation inputs are often broken down into two categories: the nearest predictable future variables (invested capital, cash flows, growth rate) and terminal market mean reverted variables (fading rate or terminal growth rate, terminal cash flow perpetuity etc.). The evaluation of business plans and investment projects also benefits considerably from the financial statements forecasts, since the without and with project comparisons are possible only when full-scale financial forecasting is implemented. Even the commercial business planning software lacks for the needed functions to fulfill the financial statements forecasting properly. Particularly it ignores the necessity to make assumptions and determine policies for the without project scenario. Sometimes it just copies the last year's figures for the future and the projects figures are simply added to the last year's statements to produce future financial estimates and analysis. Such an analysis cannot be correct in principle. The financial statement is just a snapshot of a moving object (the firm) and the figures in the financial statements will move mechanically and cannot stay put in the future. The spreadsheet modeling is much flexible and powerful tool that allows to

work out customizable models.

The DCF valuation also requires the financial statements analysis, because cash flows are hardly predictable. The best thing to do is to scrutinize the historic financial statements, work out the prospective statement of financial position, the prospective income statement and eventually to calculate the statement of cash flows, which may be used for DCF valuation. Another alternative is the Residual Income Valuation, which is also call for detailed prospective information.

Velez-Pareja and Tham (2008) noted that "for most firms it is vital to have a financial model that allows management to control value creation". Since value is estimation of future benefits, the financial forecasting is a powerful alternative to a simplified value driver tree approach, which is mechanical and inflexible. The financial model, being all-inclusive prospective information, provides integrity and allows sensitivity analysis and probabilistic simulation. The DCF valuation models or relative valuation models may be easily built over to connect the financial figures with the stock market.

Financial statements forecasting may be also of great value for non-financial activities outcomes and impacts appraising and evaluation. For example, the valuation of brands, knowledge, IT-investments, customer relationships, employee trainings are regarded as extremely hard to quantify. However they eventually pursue financial outcomes. Financial impacts of different organizational activities have a limited set of basic shapes:

- increase in incomes and receipts;
- reduction in operating costs and cash outflows;
- reduction in overhead expenses;
- capital outlays savings;
- increase in generating capacity due to various improvements (labor productivity, resource saving);
- increase in capital turnover;
- decrease in the non-cash working capital (inventory, accounts payable etc.);
- decrease in cost of capital (because of cheap financing);
- decrease in uncertainty and risks;
- increase in the life of business.

There may be different driver for these changes in the firm's financial variables. The clue to estimation of non-financial activities, intangible assets is to identify their links to above mentioned financial outputs. It may require a long logical chain, but it should be useful to notice that such activities often lead to simultaneous or successive changes in different financial outputs. And only the financial statements forecasting can help to determine their interaction. For example, the investment in customer relationships may lead to increase in commercial expenses, inventory and overhead expenses and to increase in current and remote incomes, decrease in risks of cash receipts from customers, may also have other consequences. The valuation of this investment should involve interaction with other financial variables.

One of the most intricate issues in the long-term financial statements forecasting concerns the employment of accumulated retained earnings for a profitable firm. Reinvesting retained earnings is a strategic choice of far-reaching consequences. It is directly connected to the earnings growth rate, which is a key input in all valuation models. Actually, optimistic forecast may imply exponential growth of income through reinvestment of retain earnings in business. The small firms often develop swiftly and in fact demonstrate the exponential growth in sales and earnings. The large and huge firms meet much modest investment opportunities and cannot grow at high rates. So they cannot effectively utilize internally generated cash and should carefully consider the retention/distribution option to maximize shareholders' wealth.

CAPITAL STRUCTURE

A firm's capital structure is the composition or 'structure' of its liabilities. For example, a firm that has \$20 billion in equity and \$80 billion in debt is said to be 20% equity-financed and 80% debt-financed. The firm's ratio of debt to total financing, 80% in this example, is referred to as the firm's leverage, in reality, capital structure may be highly complex and include dozens of sources of capital.

Leverage (or gearing) ratios represent the proportion of a firm's capital that is obtained through debt which may be either bank loans or bonds.

In the event of bankruptcy, the seniority of

the capital structure comes into play. A typical company has the following seniority structure listed from most senior to least:

- Senior debt
- Subordinated (or junior) debt
- Preferred stock
- Common stock

²The Modigliani - Miller theorem forms the basis for modern thinking on capital structure, though it is generally viewed as a purely theoretical result since it disregards many important factors in the capital structure process factors like fluctuations and uncertain situations that may occur in the course of financing a firm. The theorem states that, in a perfect market, how a firm is financed is irrelevant to its value. This result provides the base with which to examine real world reasons why capital structure is relevant, that is, a company's value is affected by the capital structure it employs. Some other reasons include bankruptcy costs, agency costs, taxes, and information asymmetry. This analysis can then be extended to look at whether there is in fact an optimal capital structure: the one which maximizes the value of the firm.

FINANCIAL FORECASTING IN CAPITALSTRUCTURE

There are various methods possible for financial forecasting of capital structure namely :

- External Financing Needed³ : The equation used to calculate EFN when fixed assets are being utilized at full

capacity is given below. (Please note that this equation is based on the same assumptions that underlying the Percentage of Sales Method. Namely that the Profit Margin and the Retention Ratio are constant.)

$$EFN = \frac{A_0^*}{S_0}(S_1 - S_0) - \frac{L_0^*}{S_0}(S_1 - S_0) - (PM)(S_1)(b)$$

where

- S0 = Current Sales,
- S1 = Forecasted Sales = S0(1 + g),
- g = the forecasted growth rate is Sales,
- A*0 = Assets (at time 0) which vary directly with Sales,
- L*0 = Liabilities (at time 0) which vary directly with Sales,
- PM = Profit Margin = (Net Income)/(Sales), and
- b = Retention Ratio = (Addition to Retained Earnings)/(Net Income).

When the firm is utilizing its assets at full capacity, A*0 will equal Total Assets. L*0 typically consists of Accounts Payable (and if present Accruals). The logic of underlying this equation can be explained as follows.

$$\frac{A_0^*}{S_0}(S_1 - S_0) = \text{the required increase in Assets,}$$

$$\frac{L_0^*}{S_0}(S_1 - S_0) = \text{the "spontaneous" increase in Liabilities, and}$$

$$(PM)(S_1)(b) = \text{the "spontaneous" increase in Retained Earnings.}$$

²Proposed by Franco Modigliani and Merton Miller in 1958

³<http://www.zenwealth.com/businessfinanceonline/FF/EFN.html>

The increased in Liabilities and Retained Earnings in the equation are considered "spontaneous" because that occur essentially automatically as a consequence of the firm conducting its business.

- Internal Growth Rate Method :The internal growth rate is the maximum growth rate the firm could achieve with additional external financing,

$$\text{Internal Growth Rate} = \left(\frac{\text{Net Income}}{\text{Beginning Assets}} \right) \times (1 - \text{payout ratio})$$

$$= \text{ROA} \times \text{retention rate}$$

constant. The simplified formula for calculating the IGR most often published in textbooks⁴ is

OR

$$IGR = \frac{b \text{ ROA}}{1 - b \text{ ROA}}$$

Where,

IGR= the internal growth rate,

b = the retention ratio, or the fraction of net income retained in the firm,

ROA = the return on assets, defined as the NI/Assets,

NI= net income, and

Assets = the total assets of a firm

specifically, this means using only internally generated funds without any issuance of new debt (i.e., constant existing debt) and without any issuance of new equity or repurchases. Therefore, the IGR is a special case in which both the existing debt and the interest expense would

However, this formula for the IGR is implicitly based on weak or inconsistent assumptions, as will shortly be demonstrated.

- Sustainable Growth Rate(SGR)⁵ : It is the maximum growth rate which can be achieved by using both internal accruals, as well as, external debt without increasing the financial leverage. SGR is the maximum sales that can be achieved in a year based on target operating debt and dividend payout ratios.

$$\text{SGR} = \frac{b(\text{NP/S})x(1+\text{D/Eq})}{(\text{A/S}) - [b(\text{NP/S})(1+\text{D/Eq})]}$$

⁴Textbook from RP Rustogi, IM Pandey, Prasanna Chandra & M Y Khan

⁵Financial Management, Financial Planning and Strategy, Ravi M Kishore, pp 549-550, (8th Edition)

Where, b = Retention Ratio or $(1-b =$ Dividend Payout Ratio)

NP/S = Net profit Margin or Net Profit/Sales

D/Eq = Debt-Equity Ratio or Long term debt/ Shareholder fund

A/S = Assets to Sales ratio

S = Annual Sales

SGR is a powerful planning tool used for balancing of sales objective of the firm with its operating efficiency and financial resources. The lower the ratio, the more efficient utilization of assets.

For this paper the researcher is using the EFN method as sales forecasting is the primary source to understand the financial needs of company in upcoming year. The way of choosing capital structure depends upon the expected cost of capital and past

capital structure of the company's. For making this possible researcher evaluating top ten companies on the basis of market cap (Large Cap)⁶

OBJECTIVE OF THE STUDY

1. To understand the impact of various factors like sales, assets and liabilities on EFN (forecasting model)
2. To understand the impact of Debt & Equity on Value of firm & WACC

HYPOTHESIS

- There is a significant effect on EFN due to factors like sales, assets and liabilities
- There is a significant effect of Debt & Equity on Value of firm & WACC

DATA ANALYSIS

Table A.1 : ANOVA^a

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|------------------|----|-------------------|-------|-------------------|
| 1 Regression | 60660833277.411 | 2 | 30330416638.70626 | 1.144 | .372 ^b |
| Residual | 185587151508.589 | 7 | 512450215.513 | | |
| Total | 246247984786.000 | 9 | | | |

a. Dependent Variable: Value_of_Firm

b. Predictors: (Constant), Equity, Debt

⁶Large cap means a big cap company with a market capitalization value more than \$10 billions- www.investopedia.com

Table A.2 : Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|--------------|-----------------------------|------------|---------------------------|-------|------|---------------------------------|-------------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 (Constant) | 306639.291 | 69887.658 | | 4.388 | .003 | 141381.241 | 471897.342 |
| Debt | 2.243 | 1.858 | .418 | 1.207 | .267 | -2.151 | 6.637 |
| Equity | 2.650 | 5.590 | .164 | .474 | .650 | -10.568 | 15.868 |

Table A.3: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .496 ^a | .246 | .031 | 162826.44200 | .246 | 1.144 | 2 | 7 | .372 |

In the above table of A, the researcher get to know about the high standard error due to low number of companies, we can see Student T distribution test is significant except in equity. So we may conclude that Debt & Equity have an impact on value of

Firm as per NI approach⁷. Even ANOVA table showing the same result. While R square is quite low, which indicate only 25% data variation (Debt & Equity with respect to value of firm) explained by correlation.

Table B.1 : ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | 6.424 | 2 | 3.212 | .459 | .650 ^b |
| | Residual | 48.982 | 7 | 6.997 | | |
| | Total | 55.406 | 9 | | | |

a. Dependent Variable: WACC

b. Predictors: (Constant), Equity, Debt

⁷As per Durand, Net Income Approach 1944

Table B.2 : Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|-----------------------------------|-----------------------------|------------|---------------------------|-------|------|---------------------------------|-------------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 (Constant) Debt Equity | 5.571 | 1.135 | | 4.907 | .002 | 2.886 | 8.256 |
| | 2.871E-005 | .000 | .357 | .951 | .373 | .000 | .000 |
| | -1.791E-005 | .000 | -.074 | -.197 | .849 | .000 | .000 |

a. Dependent Variable: WACC

Table B.3: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .341 ^a | .116 | .137 | 2.64527 | .116 | .459 | 2 | 7 | .650 |

In the above table of B Series, the result is showing low standard error which is a good sign, however debt have an significant impact on WACC, while Equity don't as per the result of Student T distribution Test. So we may conclude that Debt & Equity have an impact on value of Firm as per NI approach⁸. On the other side ANOVA table showing that there is not a significant impact but however debt & equity are independent while WACC is dependent one, it may due to small sample size. While R square is quite

low, which indicate only 12% data variation (Debt & Equity with respect to value of firm) explained by correlation, in Adjusted R square is improved as such.

Cross Correlation: It's a measure of similarity of two series function of the displacement of one relative (Dependent) to other. It used for referring to the correlation between entries of random vector X and Y, quite similar to autocorrelation⁹.

⁸As per Durand, Net Income Approach 1944

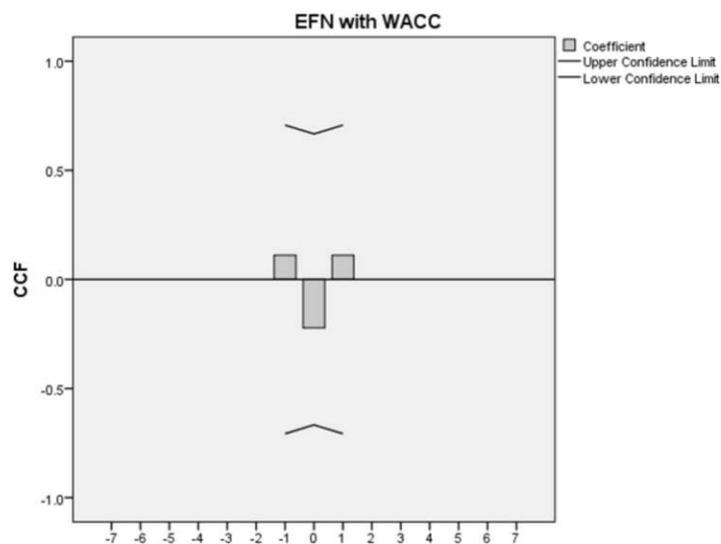
⁹En.wikipedia.org/wiki/Cross-correlation

Cross Correlations

Series Pair : EFN with WACC

| Lag | Cross Correlation | Std. Error ^a |
|-----|-------------------|-------------------------|
| -7 | .000 | .707 |
| -6 | .000 | .577 |
| -5 | .000 | .500 |
| -4 | .000 | .447 |
| -3 | .000 | .408 |
| -2 | .000 | .378 |
| -1 | .111 | .354 |
| 0 | -.222 | .333 |
| 1 | .111 | .354 |
| 2 | .000 | .378 |
| 3 | .000 | .408 |
| 4 | .000 | .447 |
| 5 | .000 | .500 |
| 6 | .000 | .577 |
| 7 | .000 | .707 |

a. Based on the assumption that the series are not cross correlated and that one of the series is white noise.

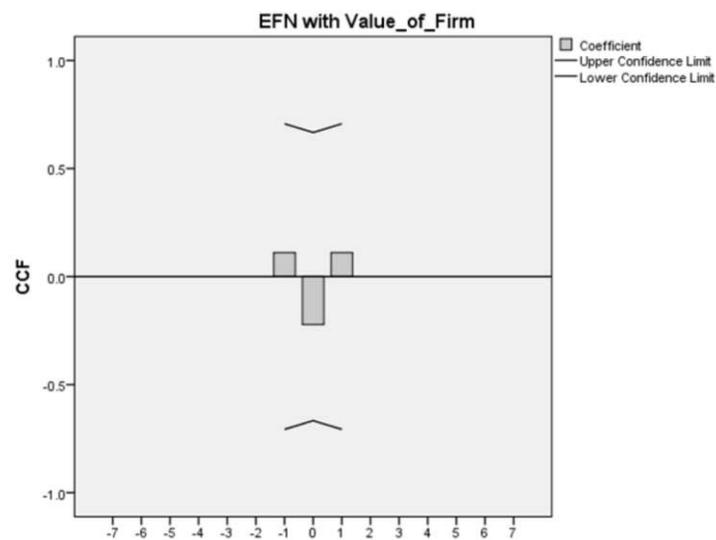


Cross Correlations

Series Pair : EFN with Value_of_Firm

| Lag | Cross Correlation | Std. Error ^a |
|-----|-------------------|-------------------------|
| -7 | .000 | .707 |
| -6 | .000 | .577 |
| -5 | .000 | .500 |
| -4 | .000 | .447 |
| -3 | .000 | .408 |
| -2 | .000 | .378 |
| -1 | .111 | .354 |
| 0 | -.222 | .333 |
| 1 | .111 | .354 |
| 2 | .000 | .378 |
| 3 | .000 | .408 |
| 4 | .000 | .447 |
| 5 | .000 | .500 |
| 6 | .000 | .577 |
| 7 | .000 | .707 |

a. Based on the assumption that the series are not cross correlated and that one of the series is white noise.



Both are same in the range of correlation between -1 to +1 showing the same set of pattern of EFN on the basis Value of Firm & WACC due to lower tendency of fluctuation¹⁰.

CONCLUSION AND RECOMMENDATION

As a researcher, there are many things observe while doing the computation of balance sheet and income statement. The final conclusion is as follows:

- Even the result with debt is quite consistent but there are many firms whose value is quite higher as compare to those firms who owe debt(Like Nestle, ITC, HUL which showing negative EFN)
- NI & NOI approaches is applicable in assumption factor, while many theories like residual theory or MM theory or Pecking order theory relies more on equity firms,
- The concept of value of firm is more of unrealistic valuation like on WACC, while in real scenarios the market price the real reflection of any company market capitalization.
- The EFN method does not allow the contingency scenario of future sales like scenarios valuation (optimistic or most likely or pessimistic) approach which is more of actual

phenomena to predict future sales instead of % method.

- The equity valuation is against the value of firm, which expresses non reliability of model in unlevered firm.

As far as recommendation is concerned, these are few of them as;

- Other researcher can explore companies on the basis of other factors like unlevered v/s levered, Midcap v/s Small Cap, Mutual fund v/s ETF etc
- Only EFN method is not enough to evaluation external fund requirement, multiple forecasting method can be undertaken to accomplish them,
- Valuation of firm can be done through other way like through market value, cost of equity, P/E ratios etc.
- Instead of valuation of firm or WACC the firm can be valued on the basis of EVA as well.

REFERENCES

1. Cheremushkin, V. Sergei “Long-Term Financial Statements Forecasting: Reinvesting Retained Earnings”, published by Social

¹⁰As Per NOI approach extension, Modigliani Miller Model

-
- Science Electronic Inc, VolX,pp 2-7(2008)
 2. Freydnberg, Stein “Theory of Capital Structure-A Review”, published by Sør-Trøndelag University College Journal(2008); <http://ssrn.com/abstract=556631>
 3. Frank,Z. Murray “Capital Structure Decisions”,published by SSHRC, New York, Vol-V(2003)
 4. Graham.R.John and Leary.T. Mark,”A reviewof Empirical Capital Structure Research and Direction for the future”, Washington University Journal(2001)
 5. Financial Management by Ravi, M. Kishore
 6. Financial Management by MYKhan
 7. Financial Management & Applications by Hull & Basu
 8. Option Valuation by Damodaran
 9. Securities Analysis and Portfolio Management by Reily & Brown
 10. <http://gfoa.org/financial-forecasting-budget-preparation-process>.
-

SUBSCRIPTION FORM

I wish to subscribe SYNERGY : I.T.S Journal of IT and Management for 1/2/3 year (s). A bank draft/cheque bearing no. _____ dated _____ for Rs./US\$ _____ drawn in favour of I.T.S Ghaziabad towards subscription for _____ years is enclosed (for outstation cheques add Rs. 30/-)

Name

Address.....

.....

.....

City..... Pin

Country.....

Phone

Mobile

E-mail

| Subscription Rates | | | |
|---------------------------|--------------|--------------|--------------|
| Category | 1 Yr. | 2 Yr. | 3 Yr. |
| Indian (in Rs.) | | | |
| Institutions | 500 | 900 | 1200 |
| Individuals/Alumni | 400 | 700 | 950 |
| Students | 200 | 350 | 450 |
| Foreign the US\$ | 100 | 160 | 210 |
| Air Mail | | | |

Signature with Date

For Subscription kindly write to :

The Librarian (Circulation Co-ordinator)
 SYNERGY
Institute of Technology & Science
 G.T. Road, Mohan Nagar,
 Ghaziabad-201 007 (U.P.)
 INDIA

GUIDELINES FOR THE AUTHORS AND CONTRIBUTORS

1. Synergy : Peer Reviewed I.T.S Journal of IT & Management invites original papers from academician and practitioner involved in the various management and allied areas which would advance knowledge, research and cases in various areas of economics, finance, HRD marketing, general management, IT, globalisation, investment trade, etc.
2. Authors should send two copies of the manuscript using word 2007. Cover page must include title of the paper and author's name, designation, official address, phone/fax number and e-mail address. The text should be double spaced with 1" margins. The author's name should not appear any where on the body of the manuscripts to facilitate the review process. The manuscripts should be accompanied by an abstract (within 150 words) and a brief biographical sketch of the author(s) on separate sheets. No abstracts are required for review essay or case studies. The authors send a declaration stating that the paper is neither published nor under consideration for publication elsewhere.
3. All tables, charts and graphs should be prepared on separate sheets. Those should be numbered continuously in Arabic numerals as referred to in the text. Where necessary, the source should be indicated at the bottom. Number and complexity of such exhibits should be as low as possible. All charts and graphs should be drawn cleanly and legible.
Tables and figures should contains self-explanatory title : Footnotes, italics, and quotes should be kept to the minimum.
- 4. While submitting the articles please ensure that you have included the following :
 - The purpose and prospective readers for whom the articles has been targeted.
 - The significance of your contribution.
 - Approach context and background to your articles by referring to the practicality and usefulness of your work.
 - Implications of the study and identification of future areas of work.
 - Proper structuring of the paper so that it reads in a clear and logical manner.
5. The editor reserves the right to modify and otherwise improve the manuscripts to meet the journal's standards of content presentation and style. Authors may also be requested to revise their manuscripts. if necessary, before acceptance for publication.
7. References should be given as follows :
References : Place the references at the end of the manuscript following the footnotes. The list should mention only those sources actually cited in the text or notes. Author's name should be same as in the original source. For more than one publication by the same author, list them in chronological order with the older item first. For more than one publication in one year by the same author. Use small (lower case) letter to distinguish them (e.g. 1980b). Following are some examples :
Book : Porter, Michael E, (1985) Competitive Advantage : Creating and Sustaining Superior Performance, The Free Press, New York.
Journal : Dunphy, D.C. & Stace, D.A. (1998), "Transformational and Coercive Strategies for Planned organizational
Change : Beyond the OD Model', Organizational Studies, Vol 9, No. 3, pp.317-34.
8. No full stop after abbreviations (UK, USA, MBBS, MBA etc.) Use full stops after initials (K.P. Singh)
9. Use double quotes throughout. The use of single quotes to be restricted for use within double quotes e.g. "In the words of Churchill. 'Any one can suggest you when you are right; friends are there to support you when you are wrong'"
Quotations in excess of 50 words should be separated from the text with a line space above and below and indented on the left. Quotes should be cited accurately, from the original source, should not be edited and should give the page numbers of the original publications.



The Education Group
Estd. 1995

The Education Group

Northern India's Leading Group of Educational Institutions

• GHAZIABAD • GREATER NOIDA • (DELHI - NCR)

CAMPUS-1 Mohan Nagar (Estd. 1995)



COURSES OFFERED

- PGDM • MBA
- MCA • Ph.D
- BBA • BCA

Contact Details

Address : Mohan Nagar, Ghaziabad - 201007
Mobile : +91-8447744044/43/42/41
Email : itsmn@its.edu.in, admissions.mn@its.edu.in
 🇺🇦 🇧🇪 www.facebook.com/ITS.Education.Group
 🇺🇦 🇧🇪 www.facebook.com/ITS.MohanNagar.Ghaziabad
 🇺🇦 🇧🇪 www.facebook.com/BBABCAI.T.SMohanNagar

CAMPUS-2 Murad Nagar (Estd. 2000)



- BDS • MDS
- BPT • MPT
- B.Sc. • M.Sc. (Biotech) (Biotech)
- B.Pharma
- M.Pharma
- Ph.D (Pharmaceutical Sciences)

Address : Delhi-Meerut Road, Murad Nagar, Ghaziabad-201206
Mobile : 8447753520/21/22, **Email :** dental@its.edu.in
 🇺🇦 🇧🇪 www.facebook.com/ITSdentalcollege.Ghaziabad
Mobile : 8447753524/23, **Email :** biotech@its.edu.in, physio@its.edu.in
 🇺🇦 🇧🇪 www.facebook.com/ITS.Physio.Biotech
Mobile : 8447753526/25,
Email : pharmacy@its.edu.in
 🇺🇦 🇧🇪 www.facebook.com/ITSParmacyCollege

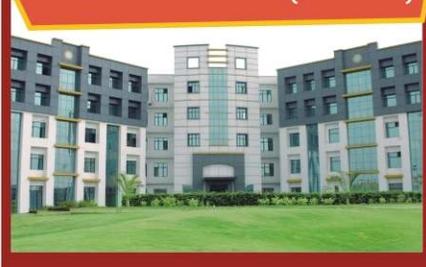
CAMPUS-3 Greater Noida (Estd. 2006)



- B.Tech
 - ▶ CSE ▶ ECE
 - ▶ ME ▶ EEE
 - ▶ CE
- MBA

Address : 46, Knowledge Park - III, Greater Noida - 201308
Mobile : 8510010843/42/41/40
Email : engg.gn@its.edu.in, admission.ec@its.edu.in
 🇺🇦 🇧🇪 www.facebook.com/ITSEC.Greater.Noida

CAMPUS-4 Greater Noida (Estd. 2006)



- BDS
- MDS

Address : 47, Knowledge Park - III, Greater Noida - 201308
Mobile : 7840001439/1650, 8447753522/20
Email : dental.gn@its.edu.in
 🇺🇦 🇧🇪 www.facebook.com/ITSDentalCollegeGN

🇺🇦 [Twitter.com/ITSEduGroup](https://twitter.com/ITSEduGroup)

🇺🇦 🇧🇪 [Facebook.com/ITSEducationGroup](https://www.facebook.com/ITSEducationGroup)