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Message From The Chief-Mentor

I am delighted to see the June, 2014 issue of the NSHM Journal of Management Research and Applications (NJMRA), which I feel will serve as the knowledge - connect between the industry and the academic fraternity. Our editorial board is excited by the steady growth of the journal and its taking shape as a true multidisciplinary publication. In a short span of time the journal has established itself and it has been receiving interesting and high-quality manuscripts from diverse spheres of management study from both India and abroad.

I wholeheartedly appreciate the tremendous performance of the current editorial team and wish them all success in this regard.

Cecil Antony
Chief Mentor
NSHM Knowledge Campus

Message From The Founding Director

It gives me great pleasure to see that the June, 2014 issue of the NSHM Journal of Management Research and Applications (NJMRA) is out well in time. To nurture such a journal is always a challenge, particularly when it focuses on high quality research. It has always selected scholarly papers on a wide variety of issues after a double blind review. I hope this journal will succeed in providing the much needed platform for researchers, academicians and corporates from India and abroad to share and debate their ideas on various areas of management.

I place on record my deepest appreciation for the excellent work done by the current editorial team within a short span of time and wish them all success in their endeavour.

Rajib Chanda
Founding Director
NSHM Knowledge Campus

Message From The Director

It is heartening to place before you another issue of the NSHM Journal of Management Research and Applications. It comes at a time when NSHM Knowledge Campus is taking big strides to enhance its footprint to go pan-India. The positive expectations out of national economy perhaps echo global sentiments. The forward march of globalization had paused since the financial crisis, and a more conditional, interventionist and nationalist models have sprung up world-wide. The future seems positive.

Keeping in mind the paramount importance of finance and economics in national well-being, the present issue has been designed with a preponderance of finance and related articles. However, caution has been exercised to ensure that relevance is not lost while choosing articles and papers. The regular readers would surely be able to mark the new features in the journal that, we believe, would provide more granularity at conceptual and practical levels, apart from rendering variety in perspectives.

Hope the journey of our reading, learning, and reflecting will find a trusted partner in the journal. I solicit your feedback on the journal - its format, and contents. It is only through mutual exchange of ideas that all of us will flourish.

Naveen Das
Director
NSHM Business School, Kolkata

From the Desk of the Chief Editor

I am extremely glad to present the June, 2014 issue of the NSHM Journal of Management Research and Applications (NJMRA).

Our avowed goal for NJMRA continues to be to offer a platform for publication of standard research articles, book reviews, perspectives etc. covering diverse areas of management, including inter-disciplinary works of merit. The current issue includes research articles dealing with areas as diverse as Performance Evaluation of SBI Mutual Fund to Contribution of Microfinance Institutions. While the first article analyses the impact of relevant Futures and Options on the Volatility of the underlying Stock Index, the second one suggests a methodology to accommodate undesirable events such as Policy Lapsation for assessing the Technical Efficiency of Life Insurance Companies in India. This issue of NJMRA also marks a debut in the area of perspectives and the first perspective discusses about "Decentralized Planning and Rural Development: An IT Perspective for India". The Book Review portion dwells on "The Ten Principles behind Great Customer Experiences: by Matthew (Matt) Watkinson, FT Publishing, 2013"

We hope that NJMRA would continue to enjoy wide acceptance among the academicians as well as the people from the world of business - both in India and abroad. Any comment or constructive suggestion for further improving the quality of the journal or enriching its content would be heartily welcome by the editorial team.

On behalf of the Editorial Team

Dr. Udayan Kumar Basu

Effect of Derivative on the Volatility of Indian Capital Market

Peeyush Bangur
Dr. Sandeep Malu
Dr. Deepak Shrivastava

Abstract:

The aim of this study is to assess the impact of introducing index and stock futures and options contracts on the volatility of the underlying stock index in India. So many studies have been made to check the effects of futures and options listing on the underlying cash market volatility in the developed and developing markets. The empirical evidence is mixed and most suggest that the introduction of derivatives do not destabilize the underlying market. Previous studies also show that the introduction of derivative contracts improves liquidity and reduction of informational asymmetries in the market. To check the non-constant error variance in the return series, a GARCH (1,1) model is used by incorporating futures and options dummy variables in the conditional variance equation and it was found that there is no stabilization or destabilization effect on market volatility. The post-derivatives period shows that the sensitivity of the index returns to market returns and any day-of-the-week effects have disappeared. Also we found that there is change in the volatility patterns during the post derivative period.

Key words:

Volatility, Indian capital market, ARCH, GARCH modelling

1. Introduction

The modelling of asset returns volatility continues to be one of the key areas of financial research as it provides substantial information on the risk patterns involved in investment and transaction processes. A number of works have been undertaken in this area. Given the fact that stock market shows high levels of price volatility, which lead to unpredictable

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outcomes, it is important to examine the dynamics of volatility. The derivatives market was launched mainly with the twin objectives to transfer risk and to increase liquidity, thereby ensuring better market efficiency. The examination of how far these objectives have materialized is important both theoretically and practically. The derivatives were launched mainly with the twin objective of risk transfer and to increase liquidity thereby ensuring better market efficiency. In India, derivatives trading started in June 2000 with introduction of Index future followed by index options in June 2001, and options and futures on individual securities in July 2001 and November 2001, respectively. Since inception, National Stock Exchange of India (NSE) established itself as the sole market leader in this segment in the country and during 2008-09, it accounted for 95 % of the market share (NSE, 20012). The total turnover on the F&O Segment was Rs. 31533003.96 crore during 20012-13.The average daily turnover during 20012-13 was Rs. 126638.57 crore.

In this paper, we attempt to study the volatility implications of the introduction of derivatives on the cash market. Through this study, we seek evidence regarding whether the listing of futures and options lead to any significant change in the volatility of the cash market in India. We have selected S&P CNX Nifty Index along with seven stocks to which the first derivatives contract was introduced by the NSE in India. In this study we have added option contract along with future contract

2. Review Of Literature:

An academic study on the volatility due to future and option in Indian Capital Market is very important and pertinent in the context of its structural existence. Before taking up such exercise, an attempt is made in this section to present a review of the available studies in the area of volatility in capital market and related area of recent origin in India and abroad. The research studies conducted in the field of volatility in India and abroad relate mostly to institutional, functional and developmental activities of Indian Capital Market.

Danthine (1978) contend that the introduction of futures improves the market depth and reduces the volatility because the mis-pricing cost by informed traders is reduced.

After this, three schools have been formed to check the volatility after the derivative introduction. First school shows that the volatility in the underlying spot market increases after the introduction of futures trading. The studies of, Stein (1987), Harris (1989), Brorsen (1991), Lee and Ohk (1992), Antoniou and Holmes (1995), Peat and McCorry (1997), comes under this category. Then, the second school (Thenmozhi, 2002; Gupta, 2002; Raju and Karnade, 2003; and Nath, 2003, Bandivadekar and Ghosh, 2003; Thenmozhi and Sony, 2004; Drimbetas, Nikolaos and Porfiris, 2007) come with conflicting conclusion that the volatility in the underlying spot market reduced after the introduction of futures trading. Third school supporting the argument that future introduction does not impact the spot market volatility, Edwards (1988); Darrat and Rahman, (1995), Hodgson and Nicholls (1991), Shenbagaraman (2003).

Previous studies on the effects of futures trading on the spot volatility show that the effect is not clear. The result of the most studies indicating that the introduction of a derivative market is stabilized the underlying spot market volatility. Kamara (1982) in his study finds that a financial future trading reduces the cost of entry of small traders into the financial markets. Maberly (1987) concluded that introducing new speculators into the markets improves risk sharing and increases liquidity, but can make cash prices more noisy

and reduce net social welfare if these new speculators are less informed than traders already in the market. Stein (1987) concluded that introducing new speculators into the markets improves risk sharing and increases liquidity, but can make cash prices more noisy and reduce net social welfare if these new speculators are less informed than traders already in the market. Futures trading can increase cash price volatility if increases liquidity causes cash prices to reflect new information more quickly. In this case, the increase in cash price volatility should increase net social welfare. Many, authors find no significant volatility effect associated with stock index future listing. Others, including Brorson (1991), Lee and Ohk (1992), Antoniou and Holmes (1995) and Gulen and Mayhew (2000) find evidence that volatility decreased with future listings in many other countries. The opposite current of literature claims that futures markets play an important role of price discovery, and have a beneficial effect on the underlying cash markets.

Cox (1976), examines the effect of organized futures trading on information in spot markets and they found that the introduction of futures markets led to greater informational efficiency, as they were relatively inexpensive, with low margin requirements and low transaction costs. Figlewski (1981) supporting the argument that futures market increases stock market volatility, support this argument based on the observation that because of their high degree of leverage, futures markets are likely to attract uninformed traders. The lower level of information of futures traders with respect to cash market traders is likely to increase the asset volatility. Thenmozhi (2002) examined whether there was any change in the volatility of the S&P CNX Nifty Index in India due to the introduction of Nifty futures and whether movements in futures prices provided predictive information regarding subsequent movements in index prices. The study shows that inception of futures trading has reduced the volatility of spot index returns. The information flow is higher in the post futures period resulting in decline in spot index volatility in the post futures period. Author also found that the futures have little or no memory effect and infrequent trading is virtually absent in futures market also the future market transmits information to cash market and futures market is faster than spot market in processing information. Gupta (2002) concludes in his study that the overall volatility of the stock market has declined after the introduction of the index futures. Bandivadekar and Ghosh (2003) studied the impact of introduction of index futures on spot market volatility on both S&P CNX Nifty and BSE Sensex using ARCH/GARCH technique. Their empirical analysis points towards a decline in spot market volatility after the introduction of index futures due to increased impact of recent news and reduced effect of uncertainty originating from the old news. Nath (2003) observes that the volatility has come down in the post-derivative trading period for most of the stocks. Raju and Karande (2003) also find that the introduction of futures has reduced volatility in the cash market. Many other studies (including Nagraj et al. 2004; Thenmozhi and Sony, 2004; Vipul, 2006; Saktival, 2007) also reach at similar conclusions. On the other side, Shenbagaraman (2003) examined the impact of the introduction of derivative trading on cash market volatility using data on stock index futures and options contracts traded on the Nifty Index by using GARCH (1,1) model. Author found that the futures and options trading have does not change in the volatility of the underlying stock index, but the nature of volatility seem to have changed in the post-futures market. Author also concluded that whether greater futures trading activity in terms of volume and open interest is associated with greater spot market volatility. It found no evidence of any link between trading activity variables in the futures market and spot market volatility. Samanta and Samanta (2007) also reached to mixed results at the level of individual stocks. Afsal and

Mallikarjunappa (2007) find out the impact of futures trading on volatility of sectoral index by considering the case of CNX IT index of NSE, India by using GARCH model. They found that clustering and persistence of volatility in different degrees before and after derivatives and the listing in futures has increased the market volatility. The sensitivity of the index return to domestic and global return remains same even after the introduction of futures trading. Also authors stated that the nature of the volatility has altered during the post-derivatives period with prices highly dependent on recent innovations which is a sign of improved market efficiency. Debashish (2008) studied the effect of future trading on volatility & operating efficiency of the underlying Indian stock market by using paired sample statistic and found that introduction of Nifty Index Future trading in India is associated with both reduction in spot price volatility & reduced trading efficiency in underlying stock market. Debashish (2008) did another study to explore the effect of future trading activity on the jump volatility of stock market by taking case of NSE Nifty stock index. He used multivariate Granger causality modelling technique and found that future trading is not force behind episodes of jump volatility.

Mallikarjunappa and Afsal (2008) studies the volatility implications of the introduction of derivatives on stock market volatility in India by using GARCH model for the S&P CNX Nifty Index as a benchmark and they concluded their research as clustering and persistence of volatility before and after derivatives, while listing seems to have no stabilization or destabilization effects on market volatility. The post derivatives period shows that the sensitivity of the index returns to market returns and any day-of-the-week effects have disappeared. That is, the nature of the volatility patterns has altered during the post-derivatives period. Caglayan (2011) investigates the impact of the introduction of index futures on the volatility of the underlying Turkish spot market. The results indicate that there have been significant changes in the structure of volatility in the ISE30 spot market, following the onset of futures trading. It has also been found that the asymmetric effect is relevant in the post-futures period.

3. Objectives:

The objectives are as follows :

1. To study the impact of introducing index and stock futures and options contracts on the volatility of the stock and index.

2. To study that either introduction of derivatives destabilize the underlying market or not.

3. To examine the week day effect, before and after introduction of the derivative contracts.

4. To examine, whether any structural change in volatility pattern, after introduction of derivative contracts.

4. Data Set :

To satisfy the objectives the data period starts from 1st April 2001 to 31st March 2011. The data used in this category is based on Secondary data, collected from national stock exchange and its official website, consider that data sources used as highly reliable due to its function for the financial markets and is core business competences within data supply and gathering. Data were analyzed through SAS (version 8.2) and SPSS (version 19) software.

4.1 Date of Introduction of Derivative Contract

The National Stock Exchange of India Limited (NSE) commenced trading in derivatives with the launch of index futures on June 12, 2000. The futures contracts are based on the popular benchmark S&P CNX Nifty Index. The Exchange introduced trading in Index Options (also based on Nifty) on June 4, 2001. NSE also became the first exchange to launch trading in options on individual securities from July 2, 2001. Futures on individual securities were introduced on November 9, 2001. Futures and Options on individual securities are available on 149 securities stipulated by SEBI. Date of launching of derivative contract has been taken as cut off date. Cut off date for the sample size is given in following table:

Table-1

				Cutoff date	
Name	**Registered name**	**NSE ID**	**Total period**	**Future contract**	**Option contract**
Cipla	Cipla Limited	INE059A01026		09/11/2001	02/07/2001
Grasim	Grasim Industries Limited	INE047A01013		09/11/2001	02/07/2001
HPCL	Hindustan Petroleum Corporation	INE094A01015		09/11/2001	02/07/2001
NFY	Infosys Limited	INE009A01021		09/11/2001	02/07/2001
Tata Power	Tata Power Company Limited	INE245A01021		09/11/2001	02/07/2001
Nifty	CNX Nifty	-		12/06/2001	04/06/2001

5. Hypothesis

Hypotheses were set as follows.

H_0: Introduction of derivative contract in capital market does not affect the underlying spot market volatility.

H_{1A}: Introduction of derivative contract on index S&P CNX Nifty will affect the underlying spot market volatility of S&P CNX Nifty.

H_{1B}: Introduction of derivative contract on particular stock will affect the underlying spot market volatility of particular scrip.

H_{2A}: Introduction of derivative contract on index S&P CNX Nifty will destabilize the underlying S&P CNX Nifty.

H_{2B}: Introduction of derivative contract on particular stock will destabilize the underlying.

H_{3A}: Week day effects are present in S&P CNX Nifty.

H_{3B}: Week day effects are present in stocks.

6. Methodology

The econometric literature provides a range of models (GARCH, VAR etc) to become cognizant about the facts of financial time series. Although present study is based on volatility measures and destabilizing problems with the instruments like derivative, for this purpose ARMA-GARCH (1, 1) model was used, as the volatility model that meet the requirements of capturing the statistical properties of the return data. In this section, different elements were explored which included in GARCH (1, 1) model. First of all, the autoregressive moving average (ARMA) processes were investigated in the conditional mean specification part of the model. After the confirmation of ARMA, the presence of ARCH was checked. The GARCH framework was referred to as the first moment of financial time series. After that, generalised autoregressive conditional heteroscedasticity (GARCH) processes were described in the conditional variance specification part, which was referred to as the second moment of financial time series.

Moreover, in line with the Symmetric GARCH framework of conditional variance, a dummy variable was added in order to capture the effect of future and option on volatility, that is, the circumstance that negative shocks tend to have a larger impact on the volatility than positive shocks

ARMA-GARCH (1, 1) Modeling

In first two objectives the main focus was on two aspects, first it was, how the initial introduction of derivative contracts impact cash market. To investigate this issue, a dummy variable was introduced into the conditional variance equation that measures volatility

Hence equation 1 and 2 estimated as:

$$Y_t = \alpha_0 + \alpha_1 X_t + \varepsilon_t, \quad \text{where } \varepsilon/Y_{t-1} \sim N(0, \sigma^2_t) \ldots\ldots\ldots\ldots\ldots\ldots 1$$

$$\sigma^2_t = \beta_0 + \sum_{j=1}^{p} \beta_j \varepsilon^2_{t-1} + \sum_{j=1}^{q} \beta_j \sigma^2_{t-j} + Y_0 D \ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

D is a dummy variable, we have taken the value of dummy variable zero before future and option introduction if the time is prior to futures or options introduction and one after the introduction of future and option. If the coefficient of this dummy variable is not statistically significant, then the introduction of derivative contracts has no impact on spot market volatility. The sign of the coefficient shows that the positive value implies a rise in spot market volatility with the introduction of derivative and negative leads to decrease. It is to be noted that any change in market behavior, including volatility is almost always a result of a mixture of factors. However our interest was only in the effect of derivatives during inception on the volatility of Indian capital. To remove the effect of world events we have added the lagged return of Dow Jones index.

Also it was compulsory to control the any big event in the Indian economy we have added the returns of nifty Junior. The Nifty junior returns helps us in two ways, first we can understand the effect of derivatives and second nifty junior does not have any derivative contract so that the earlier one can be predicted easily. As such, it serves as a perfect control variable for us to isolate the effect of any big event in the market and hence we can concentrate only on the volatility of the nifty.

WEEK DAY EFFECT: prior studies have also reported day-of-the-week effect on returns. Also we have examined the effect of the rollover of contract in next month and current month

settlement process, to clarify week day effects exist even today. The dummy in mean equation was added. The following conditional mean equation is estimated as follows:

$R_t = \alpha_0 + \alpha_1 R_{t, NJ} + \alpha_2 R_{Dj,t-1} + \sum_{k=1}^{5} D_i + U_t$ 20

$R_{index, t}$ = Daily return on the individual stock/index, calculated at 1st difference of log of stock or index,

$\alpha_1 R_{t, NJ}$ = return of nifty junior index,

$\alpha_2 R_{Dj,t-1}$ = First difference of the log of the index, and it is the lagged Dow Jones index return,

D_i = are day-of-the-week dummy variables for Monday to Friday.

U_t = residual term assumed to be distributed N $(0, \sigma^2_t)$

To investigate the second issue, the sample was divided into the pre-futures and post- futures sub-sample and a GARCH model is estimated separately for each sub-sample. This allows the researcher to compare the nature of volatility before and after the onset of futures trading. The impact of stock index futures and option contract introduction in the Indian market is examined using a univariate GARCH (1, 1) model. The time series of daily returns on the S&P CNX Nifty Index is modelled as a univariate GARCH process. To check the stability of parameter Chow test was applied this allows the researcher, to check the volatility between two periods.

7. Result And Discussion

Table 2: Test Of Stationarity With Augmented Dickey Fuller Test

	ADF Levelled				ADF Ist Difference			
	LAG Length	ADF	P-Value	t- stat	Lag Length	ADF Stat.	P-Value	t- stat
Cipla	6	0.631	0.589	0.713	5	-22.176*	0.0007	47.05
Grasim	6	0.549	0.235	0.234	5	-15.118*	0.000	24.13
HPCL	6	0.4596	0.791	0.500	5	-7.183*	0.000	34.16
INFY	6	0.8194	0.715	1.021	5	-21.941*	0.000	52.67
Tata Power	6	0.8687	0.338	0.342	5	-12.562*	0.00	27.64
Nifty	6	0.5871	0.4156	0.13	5	-17.257*	0.00	16.24

***based on the data taken from NSE's official website**

Notes: for t- stat: at 1 % level; 5% level, at 10% level ,

For p value: at 1 % level is 0.01; 5% level is 0.05, at 10% level is 0.1

Time series are subject to check the stationarity. For this purpose we applied the augmented dickey fuller test. The Dickey fuller test applied on the return series of the spot price of all companies and CNX S&P Nifty Index. The hypothesis developed by Kapetanios et al. (2003) of non-stationary series was used against stationary non-linear alternatives. The established hypothesis are as follows:

H_0: $\delta=0$, (that time series do not show any stationary effect at given level of significance) and, **H_1: $\delta < 0$:** (that time series shows the stationary effect at given level of significance) After complete analysis of table 2, it was clear that all time series does not show any stationarity at levelled analysis of augmented dickey fuller test, and accept the null hypothesis that all time series were non stationary at levelled analysis and accepts the alternate hypothesis that time series are stationary at levelled analysis. At first difference (lag) all time series were found to be stationary.

Table 3: Descriptive Stats

Descriptive Stat.						
Company	**Period (Count)**	**Mean**	**SD**	**Skew**	**Kurt**	**JB**
Cipla	Whole Period(3266)	-0.02293	4.421406	-20.7815	653.4651	57812262.7208
	Pre future (921)	0.050414	4.693080	-11.2267	244.4249	2256072.078
	Pre Option (831)	0.062538	4.862511	-11.1863	235.2406	1884854.447
	F/Post (2331)	-0.05444	4.322485	-25.5177	869.4040	73160431.707
	O/Post (2435)	-0.05186	4.262171	-25.4847	880.3886	78366665.7269
Grasim	Whole Period(3311)	0.061656	2.793975	-0.07472	4.085436	653.231699
	Pre future (966)	-0.01387	3.789414	0.082107	0.559401	960.08567
	Pre Option (876)	-0.00676	3.907038	0.081580	0.435612	961.10797
	F/Post (2345)	0.089839	2.261819	-0.27589	8.87271	3399.5550
	O/Post (2435)	0.085295	2.264703	-0.27592	8.448693	3042.9927
HPCL	Whole Period(3290)	-0.00671	3.072123	-0.58427	12.34290	12153.10109
	Pre future (945)	-0.12678	3.707695	-0.99968	12.27896	3547.5512
	Pre Option (855)	-0.12112	3.790857	-1.04431	12.34827	3268.68229
	F/Post (2345)	0.04205	2.779191	-0.11567	9.658536	4337.19878
	O/Post (2435)	0.03314	2.77668	-0.10162	9.314605	4049.73118
INFY	Whole Period(2725)	0.039079	2.777779	-1.35302	18.92844	29638.69468
	Pre future (325)	-0.34963	5.078743	-1.10082	7.141055	299.85831
	Pre Option (238)	-0.42135	5.30247	-1.2618	7.990425	310.14897
	F/Post (2400)	0.090841	2.294152	-0.85893	17.03976	20006.5903
	O/Post(2487)	0.078016	2.387885	-0.86453	14.78365	14698.590
Tata Power	Whole Perio(3279)	0.072845	2.822411	-0.07259	5.687475	989.65733

***Based on the data taken from NSE's official website**
Note: JB Test at 5% level of significance is 7.88

Table 3 provides the descriptive statistics of the daily returns for the companies and index. The daily time series observations on the basis of closing price had been mentioned in the parenthesis of the period. the period was divided under study into pre-futures and post-futures periods using cut-off dates given in the table 1, to study symmetric nature of the time series three test, skewness, kurtosis and Jarque Bera, had been applied to check whether time series was normally distributed or not. For a normal distribution the skewness was zero. A distribution skewed to the right had positive skewness and a distribution skewed to the left had negative skewness. For the normal distribution, Kurtosis gave a measure of the thickness in the tails of a probability density function. For a normal distribution the kurtosis should be three. It followed that, for a normal distribution, the excess kurtosis treated as zero. If kurtosis exceeded three, then the problem of leptokurtosis would arise. The Jarque-Bera test for normality followed the chi square distribution.

Table 3 shows the descriptive statistic of returns of individual stock and S&P CNX Nifty for pre derivatives & post derivatives period. The mean value of all stock except cipla as well as nifty has been increased during post future and option period. The reasons for the better returns after the post derivative period was high trading, development and regulations in the capital market. Standard deviation had been taken as a measure of volatility, decreased from in all companies from the pre-futures period to the post-futures period. A similar result was shown with respect to the pre-options and post-options periods. This result shows that there was a decrease in spread with the introduction of futures and options trading. The time series was negatively skewed in all companies. Returns shows the evidence of fat tails in whole period and post future and option period, since the kurtosis exceeds three, which was the normal value, while the problem of leptokurtosis wasn't arise during pre future and options except cipla. Jarque bera test also following the non normality distribution.

Table 4: Confirmation of Arch / Garch Effect

ARCH EFFECT											
		LM	LB Q(1)	LB Q(2)	LB Q(3)	LB Q(4)	LB Q(5)	LB Q(6)			
Index/scrip (Count)		Intercept	$?_1$	$?_2$	$?_3$	$?_4$	$?_5$	$?_6$	R^2	F	CR^2
Cipla (3266)	Coefficient	-0.804*	-0.246* (98.842)	-0.024 (100.641)	0.044 (107.460)	-0.047 (115.714)	-0.005 (115.823)	-0.011 (116.267)	0.4581	44.61	1496.1
	Std Error	0.021	0.025	0.018	0.017	0.016	0.016	0.017			
	t-stat	4.197	5.933	0.514	0.389	0.247	0.354	0.221			
	P- Value	0.000	0.000	0.551	0.441	0.395	0.741	0.654			
Grasim (3311)	Coefficient	-0.319*	-0.209* (74.223)	-0.026 (76.431)	0.014 (77.082)	0.004 (77.136)	0.024 (79.034)	-0.009 (79.294)	0.8154	27.53	2699.7
	Std Error	0.022	0.024	0.017	0.017	0.017	0.017	0.017			
	t-stat	3.652	4.829	0.987	0.664	0.251	0.432	0.178			
	P- Value	0.000	0.000	0.612	0.554	0.642	0.555	0.617			
HPCL (3290)	Coefficient	-0.220*	-0.209* (70.927)	-0.005 (71.030)	0.011 (71.465)	-.011 (71.888)	0.015 (72.631)	0.023 (74.442)	0.6341	32.18	2086.2
	Std Error	0.028	0.025	0.017	0.017	0.017	0.017	0.017			
	t-stat	5.764	9.2568	0.840	0.556	0.649	0.335	0.444			
	P- Value	0.000	0.000	0.660	0.548	0.774	0.315	0.489			
INFY (2725)	Coefficient	-0.649*	-0.190 * (46.758)	-0.016 (47.507)	0.017 (48.362)	-0.014 (48.889)	0.021 (50.048)	0.015 (50.678)	0.8307	42.18	2263.6
	Std Error	0.022	0.028	0.019	0.018	0.019	0.020	0.018			
	t-stat	13.148	7.216	0.741	0.258	0.369	0.123	0.456			
	P- Value	0.000	0.000	0.693	0.582	0.471	0.451	0.546			

Tata Power (3279)	Coefficient	-0.614*	-0.225* (83.950)	0.016 (84.756)	-0.059 (96.455)	0.035 (100.187)	-0.012 (100.614)	0.023 (102.183)	0.8527	23.1	2796
	Std Error	0.022	0.025	0.018	0.017	0.018	0.018	0.018			
	t-stat	5.24	6.16	0.976	0.349	0.116	0.974	0.946			
	P- Value	0.000	0.000	0.503	0.661	0.322	0.460	0.453			
Nifty (3254)	Coefficient	-0.416*	-0.269* (129.710)	0.003 (129.742)	0.015 (130.409)	0.005 (130.473)	-0.004 (130.532)	-0.014 131.275)	0.6746	62.05	2195.2
	Std Error	0.022	0.025	0.018	0.018	0.018	0.018	0.017			
	t-stat	7.69	5.239	0.945	0.222	0.119	0.741	0.541			
	P- Value	0.000	0.000	0.466	0.644	0.493	0.536	0.657			

Note: Autocorrelation coefficients with Q-Stats are reported in parentheses.

#t- stat: *1%=3.090; **5%=2.576; ***10%=2.326

p value: at 1 % level is 0.01; 5% level is 0.05, at 10% level is 0.1

Confirmation of Arch / Garch Effect

To test for serial correlation in the standardized residuals, εt / σt , Lagrange Multiplier test was applied. Lagrange Multiplier (LM) test is based on the auxiliary regression.

$$\varepsilon^2 = \alpha_0 + \sum \alpha_i \varepsilon^2_{t-I} \text{.....ZZZ}$$

Null hypothesis for lag range multiplier is that, there are no autocorrelation up to lag *p*, $H_0 = \alpha_1 = \alpha_2 = \alpha_3 = \ldots\ldots \alpha_p = 0$. The test statistic $LM = C^*R^2$ has an asymptotic chi-square distribution with *p* degrees of freedom, where C represents the sample size and R^2 is obtained from the auxiliary regression above. If any lag is greater than zero then we can rejects the null hypothesis and if the null hypothesis is accepted, there would be no autoregressive effect in the error terms.

To confirm Arch/GARCH effects in time series under study, the Lagrange multiplier test (LM) / Ljung Box (LB) test were used. For that purpose Q- stats of autocorrelation up to six lags had been used, while only Ist lag of LM test had been taken. It was started with the residual term in the equation for the 6 lag using the model given in equation ZZZ.

Interpretation of LM test for ARCH Effect: for that purpose the Lag range multiplier test had been applied for the confirmation of ARCH effect. the hypothesis developed by T. Mallikaarjunappa and Afsal E. M. (2008) of non ARCH effect had been used in the time series against ARCH effect. the hypothesis was established as follows:

H_0: coefficient at any lag = 0, (that time series do not shows any ARCH effect at any lag at given level of significance)

And, H_1: coefficient at any lag ≠ 0: (that time series shows an ARCH effect at any lag at given level of significance).

The regression test explored that the coefficient of LM test for lag 1 were statically significant at 1%, level of significance. the arch effect on the basis of f test and χ^2 distribution at 6 lags was analysed.

In Nifty observed f-value exceeded the LM test statistic at first lag, the value of f (6, 3254) = 2.8020 (at 1% level of significance), as C^*R^2 was 3254*0.6746 = 2195.2 which did not follow the χ^2 (6) = 22.5 at 1% level of significance. Therefore the null hypothesis that all coefficients were zero was rejected, and concluded that, sufficient ARCH

effect was present in Nifty on the closing price basis. In the similar way all companies shows the sufficient ARCH effect on the closing price basis.

Interpretation of LB test for GARCH Effect: Basic statistics of return series were reported in table 4, particularly the correlation coefficient up to six lags and Ljung Box stats. The hypothesis set for testing of Ljung Box analysis was as:

H_0: time series do not show any interdependency at any lag.

H_1: time series shows the interdependency at any lag.

The finding indicated that existence of high serial correlation coefficient. Also it was found that at first lag of index and all companies were confirming the GARCH effect at the 1% level of significance.

TABLE 5: ESTIMATES OF GARCH (1, 1) MODEL WITH FUTURE DUMMY

	Mean Equation								Variance Equation				
	α 0	α 1	α 2	α 3	α 4	α 5	α 6	α 7	β0	β1	β2	? 0	R^2
	Intercept	Return	Lagged return of Dow Jones	Mon	Tue	Wed	Thurs	Fri	Arch0	Arch1	Garch1	Future/Option Dummy	
Cipla	-0.00129	0.88677	0.008030	-1.46	0.1629	0.007	0.15	0.00159	0.0000249	0.07516	0.7856	-0.0000535	0.4670
	(-3.16)	(17.737)	(9.58)	(-8.47)	(13.99)	(1.891)	(6.77)	(2.95)	(3.19)	(7.11)	(89.23)	(-1.83)	
Grasim	-0.00122	0.89029	0.001416	1.46	0.1233	0.004	0.15	0.00136	0.0000844	0.07644	0.8077	-0.0000185	0.8280
	(-2.56)	(31.482)	(8.41)	(8.94)	(8.16)	(1.84)	(7.91)	(2.15)	(3.59)	(7.30)	(84.76)	(-0.362)	
HPCL	-0.00128	0.51441	0.001439	1.24	0.1141	0.004	0.21	0.00261	0.0000405	0.06167	0.6366	-0.0000618	0.6349
	(-2.73)	(56.204)	(4.87)	(7.45)	(10.09)	(1.79)	(8.09)	(4.44)	(3.21)	(7.61)	(95.31)	(-1.33)	
INFY	-0.00125	0.85762	0.001532	1.41665	0.1212	0.00495	0.13621	0.00159	0.0000525	0.06315	0.8944	-0.0000011	0.8329
	(-2.65)	(66.812)	(5.18)	(8.56)	(8.01)	(1.082)	(5.84)	(2.82)	(3.85)	(8.31)	(96.72)	(-0.275)	
Tata Power	-0.00138	0.74561	0.008510	1.18832	0.1354	0.001580	-0.30472	0.00280	0.0000641	0.07165	0.9024	-0.0000330	0.8839
	(-3.16)	(63.681)	(4.95)	(6.92)	(9.94)	(0.29)	(-8.26)	(3.04)	(3.51)	(8.08)	(69.87)	(-0.976)	
Nifty	-0.00119	0.65888	0.001596	1.39467	0.1436	0.001982	0.19510	0.00261	0.0000566	0.05444	0.8259	-0.0000651	0.6952
	(-2.88)	(55.633)	(8.14)	(7.76)	(8.32)	(1.37)	(6.14)	(4.84)	(3.89)	(8.99)	(72.92)	(0.153)	

TABLE 7: ESTIMATES OF GARCH (1,1) MODEL BEFORE AND AFTER FUTURE INTRODUCTION

	Mean Equation								Variance Equation				
	α 0	α 1	α 2	α 3	α 4	α 5	α 6	α 7	β0	β1	β2	R^2	Chow test
	Intercept	Return	Lagged return of Dow Jones	Mon	Tue	Wed	Thurs	Fri	Arch0	Arch1	Garch1		
Cipla Pre	-0.00032 (-0.88)	0.71191 (63.534)	0.002649 (5.34)	0.7135 (6.38)	0.1351 (10.29)	0.00386 (1.24)	0.0589 (3.39)	0.00088 (1.76)	0.0000106 (2.89)	0.06413 (6.51)	0.6429 (74.65)	0.4773	15.821
Cipla Post	-0.00087 (-1.68)	0.58971 (60.089)	0.005496 (8.72)	0.5973 (0.328)	0.0543 (0.403)	0.00059 (0.057)	0.0955 (0.572)	0.00142 (0.297)	0.000091 (0.41)	0.09589 (7.57)	0.004230 (0.537)	0.4415	
Grasim Pre	-0.00164 (-2.54)	0.77112 (61.413)	0.000408 (2.35)	0.8640 (4.38)	0.1563 (9.12)	0.000207 (0.31)	0.09684 (5.081)	0.00038 (0.48)	0.0000602 (2.86)	0.05228 (6.81)	0.8319 (87.26)	0.8369	25.007
Grasim Post	-0.0001 (-1.89)	0.81 (63.541)	0.004629 (7.59)	0.676 (0.338)	0.0981 (0.631)	0.00561 (0.301)	0.08837 (0.638)	0.00153 (0.284)	0.0000420 (1.23)	0.06374 (7.24)	0.005378 (0.5164)	0.8013	
HPCL Pre	-0.00206 (-3.81)	0.04073 (32.831)	0.008624 (8.52)	0.681 (5.003)	0.1383 (11.07)	0.00284 (1.07)	0.01180 (2.34)	0.00271 (4.57)	0.0000462 (3.57)	0.04512 (2.31)	0.5272 (81.63)	0.6614	34.190
HPCL Post	-0.00109 (-1.48)	0.384 (69.145)	0.002965 (6.44)	0.776 (0.527)	0.0523 (0.648)	0.00381 (0.133)	0.20582 (0.791)	0.00193 (0.242)	0.0000381 (2.98)	0.04899 (9.01)	0.005035 (0.7635)	0.6117	
INFY Pre	-0.00132 (-2.16)	0.76246 (72.158)	0.005467 (6.34)	0.1063 (5.16)	0.9034 (4.38)	0.00239 (1.64)	0.1016 (4.95)	0.00163 (2.79)	0.0000281 (2.84)	0.05881 (2.38)	0.9120 (98.33)	0.8539	15.843
INFY Post	-0.00116 (-2.83)	0.80 (74.364)	0.009437 (2.34)	0.8821 (0.288)	0.1359 (0.756)	0.00106 (0.108)	0.0893 (0.391)	0.00057 (0.075)	0.0000269 (3.18)	0.07413 (7.64)	0.007512 (0.8023)	0.8211	
Tata Power Pre	-0.00076 (-1.91)	0.68731 (70.859)	0.007946 (1.36)	0.95685 (6.38)	0.1187 (7.74)	0.00172 (1.41)	0.33165 (9.44)	0.00226 (2.58)	0.0000981 (4.64)	0.01316 (4.58)	0.8749 (66.37)	0.8602	18.448
Tata Power Post	-0.00159 (-3.96)	0.25824 (29.629)	0.001643 (6.85)	0.82150 (0.583)	0.0662 (0.485)	0.00092 (0.071)	0.0484 (0.237)	0.00108 (0.168)	0.0000286 (2.15)	0.08620 (6.72)	0.005163 (0.4315)	0.8738	
Nifty Pre	-0.00136 (-3.11)	0.62151 (62.341)	0.008130 (6.59)	0.9418 (6.45)	0.1665 (10.93)	0.002259 (1.62)	0.1543 (4.97)	0.002272 (4.23)	0.0000494 (3.67)	0.02356 (4.40)	0.5862 (61.85)	0.7201	21.053
Nifty Post	-0.00091 (-1.77)	0.60297 (48.061)	0.002426 (8.34)	1.0658 (0.697)	0.0948 (0.627)	0.001392 (0.117)	0.0654 (0.305)	0.000875 (0.386)	0.0000482 (3.49)	0.06580 (6.74)	0.004387 (0.3394)	0.6811	

TABLE 8: ESTIMATES OF GARCH (1,1) MODEL BEFORE AND AFTER OPTION INTRODUCTION

	Mean Equation								Variance Equation				
	α 0	α 1	α 2	α 3	α 4	α 5	α 6	α 7	β0	β1	β2	R^2	Chow test
	Intercept	Return	Lagged return of Dow Jones	Mon	Tue	Wed	Thurs	Fri	Arch0	Arch1	Garch1		
Cipla Pre	-0.00044	0.71182	0.002666	0.7142	0.1379	0.00365	0.0596	0.00071	0.0000121	0.06403	0.6441	0.4512	15.821
	(-0.91)	(61.531)	(5.39)	(6.41)	(10.33)	(1.21)	(3.42)	(1.73)	(2.92)	(6.48)	(73.99)		
Cipla Post	-0.00074	0.58985	0.005481	0.5961	0.0559	0.00072	0.0968	0.00156	0.000103	0.09574	0.004218	0.4759	
	(-1.61)	(4.92)	(8.69)	(0.322)	(0.408)	(0.061)	(0.575)	(0.299)	(0.48)	(7.51)	(0.521)		
Grasim Pre	-0.00181	0.77122	0.000419	0.8652	0.1551	0.000218	0.09698	0.00046	0.0000618	0.05237	0.8327	0.8011	25.007
	(-2.59)	(62.417)	(2.38)	(4.40)	(9.08)	(0.37)	(5.084)	(0.51)	(2.89)	(6.85)	(87.96)		
Grasim Post	-0.0013	0.95	0.004611	0.684	0.0995	0.00575	0.08843	0.00168	0.0000432	0.06386	0.005365	0.8369	
	(-1.92)	(68.424)	(7.56)	(0.341)	(0.637)	(0.304)	(0.641)	(0.289)	(1.26)	(7.29)	(0.5468)		
HPCL Pre	-0.00218	0.04084	0.008639	0.694	0.1399	0.00271	0.01194	0.00285	0.0000475	0.04526	0.5259	0.6622	34.190
	(-3.84)	(33.366)	(8.57)	(5.008)	(11.09)	(1.03)	(2.39)	(4.61)	(3.61)	(2.38)	(80.37)		
HPCL Post	-0.00119	0.397	0.002978	0.789	0.0536	0.00394	0.20596	0.00182	0.0000394	0.04911	0.005048	0.6415	
	(-1.52)	(70.619)	(6.49)	(0.531)	(0.651)	(0.138)	(0.796)	(0.238)	(2.102)	(9.05)	(0.7639)		
INFY Pre	-0.00147	0.76255	0.005455	0.1076	0.9050	0.00249	0.1029	0.00171	0.0000270	0.05894	0.9438	0.8201	15.843
	(-2.19)	(73.271)	(6.30)	(5.20)	(4.41)	(1.67)	(4.98)	(2.81)	(2.80)	(2.42)	(98.88)		
INFY Post	-0.00125	0.89	0.009448	0.8840	0.1366	0.00118	0.0878	0.00066	0.0000251	0.07422	0.007539	0.8116	
	(-2.86)	(76.357)	(2.36)	(0.292)	(0.759)	(0.110)	(0.388)	(0.079)	(3.13)	(7.69)	(0.8027)		
Tata Power Pre	-0.00091	0.68747	0.007955	0.95671	0.1198	0.00161	0.33181	0.00242	0.0000990	0.01301	0.8762	0.8713	18.448
	(-1.97)	(73.902)	(1.40)	(6.33)	(7.78)	(1.38)	(9.49)	(2.62)	(4.66)	(4.53)	(67.22)		
Tata Power Post	-0.00166	0.25832	0.001629	0.82162	0.0678	0.00103	0.0493	0.00121	0.0000271	0.08632	0.005175	0.8628	
	(-3.99)	(29.676)	(6.81)	(0.587)	(0.488)	(0.075)	(0.241)	(0.172)	(2.10)	(6.76)	(0.4399)		
Nifty Pre	-0.00149	0.62161	0.008141	0.9426	0.1678	0.002274	0.1521	0.002262	0.0000479	0.02376	0.5849	0.6843	21.053
	(-3.14)	(61.346)	(6.62)	(6.49)	(10.97)	(1.67)	(4.93)	(4.218)	(3.62)	(4.44)	(60.65)		
Nifty Post	-0.00084	0.60282	0.002450	1.0666	0.0965	0.001384	0.0666	0.000888	0.0000496	0.06595	0.004371	0.7028	
	(-1.75)	(50.058)	(8.39)	(0.699)	(0.630)	(0.112)	(0.309)	(0.390)	(3.52)	(6.78)	(0.3272)		

Analysis of Table 5-8

Volatility Persistency: ARCH/GARCH Analysis

In order to study, the impact of introduction of future and option on the volatility of Indian capital market, GARCH model given in equation had been applied along with this the interest was to determine the changes in the pattern of volatility after introducing future and option. Also it was trying to show that, whether there was change in volatility (increase or decrease).

In order to isolate the impact of future and option (after introduction) and to remove market-wide influences on Nifty returns, a proxy that can be associated with any future and option contract had been used, and yet captures market-wide influences in India. For example, any news releases relating to economic conditions like, inflation rates, growth forecasts, IIP data, rate cuts, etc were likely to affect the whole market. It was necessary to remove the effects of all these factors on price volatility. Since the Nifty Junior had been used as a proxy variable to capture market-wide information effects (Table 5-8) and found that there was no predictable information from market wide factors on the nifty returns.

Any predictability associated in the time series with lagged world market returns and day-of-the-week effects was also removed. The lagged return on the Dow Jones index was used as a proxy for the world market return to remove any worldwide price movements on volatility in the Nifty return (Table 5-8) and found that there was no predictable information from world markets on the nifty returns (coefficient on return of Dow Jones were not statically significant at 1%, 5%, 10% level of significance). Also we have introduced a day of the week dummies for Monday to Friday (Table 5-8).

In order to examine the impact of the introduction of the futures and options contracts, a Dummy variable in the conditional variance equation was introduced. A significant positive co-efficient would indicate and increase in volatility, a significant negative (positive) coefficient would indicate a decrease (increase) in volatility.

The results of the estimation for the impact of futures introduction were presented in Table 5. The hypothesis, used by Shenbagaraman P. (2003) of ARCH/GARCH had taken. The hypothesis is as follows:

$\mathbf{H_0}$: $\beta_2 = 0$, (that time series do not show any ARCH/GARCH effect at given level of significance) and, $\mathbf{H_1}$: $\beta_2 \neq 0$: (that time series shows the ARCH/GARCH effect at given level of significance).

ARCH Effect: ARCH models assume that the variance of the current error term was related to the size of the previous period's error terms, giving rise to volatility clustering. The coefficients of the, ARCH constant was statically significant at 1% level of significance (table 5-8) and were within the parametric restrictions, thus implying a greater impact of shocks (or news) on volatility, hence it can be concluded that a significant ARCH coefficient indicates a large shock on previous day leads to a large (conditional) variance on current day. ARCH coefficient was the "news" parameter that explains that recent news had a greater impact on price changes. Specifically, it relate to the impact of yesterday's news on today's volatility.

GARCH Effect: In contrast, β2 reflects the impact of 'old news' that indicates that it picks the impact of prior news on yesterday's variance and as such indicated the level of persistence in the information effect on volatility. The coefficients of the, GARCH constant was statically significant at 1% level of significance (table 5-6) and were within the parametric restrictions. The results of GARCH model would be interpret as if the coefficient of the GARCH variable was statically significant then it can be concluded that, old news had no impact on today's spot price changes and on the volatility.

Table 5 and 6 presents the result of the model with a Future and Options dummy. The Dummy Future/option was taken as zero before the introduction of future/option contracts in the particular scrip/index and one after the introduction of future/option contract on particular scrip/index. The introduction of future and options had no effect on spot market volatility. We tried to explore whether the nature of the GARCH process was altered or not because of future and option introduction. Hence the GARCH model was estimated separately for the pre futures and the post-futures period. Table 7 and 8 presents the result of this estimation.

Chow Test for Parameter Stability

Chow test generally check the stability of structural changes in error. In this test, a comparison was made through the break point between pre and post derivative. The null hypothesis of parameter stability (i.e., no structural change) could not be rejected if the computed F value in an application did not exceed the critical F value given d.f. (k, n1 + n2 – 2k) at the chosen level of significance. If the computed F value rejects the hypothesis of parameter stability then it can be suggested that the regression coefficients were statistically different before and after futures introduction, and it can be said that there was change in the pattern of the volatility.

The hypotheses set for chow test were as follows:

$\mathbf{H_0}$: The time series do not shows any structural changes in the pattern of volatility at given level of significance,
And, $\mathbf{H_1}$: The time series shows the structural changes in the pattern of volatility at given level of significance,

The regression coefficients of the pre-futures and post-futures models under the null hypothesis were found that both coefficients were statistically significant. The Chow test statistically followed the F distribution with degrees of freedom (k, n1 + n2 – 2k), where k was the number of parameters and n1 and n2 were the number of observations in the pre-futures and post-futures regression models, respectively.

Interpretation

Destabilization Effect: A dummy variable was introduced into the conditional variance equation, and found that the coefficient on the futures/option dummy Y0, for the CNX Nifty which equals to -0.0000651 with a t-stat of 0.153 for future dummy (Table 5) and -0.0000643 with a t-stat of -0.238 for option dummy (Table 6), which were not statically significantly, different from zero, indicating that there was no impact on volatility, while confirming the GARCH effect and suggesting that the introduction of derivative contracts did not appear to have any destabilization impact on spot market volatility. Similar Results were found in all stocks.

Week Day Effect: This appears to be statically significant (at 1% level of significance) day-of-the-week effects as given by the coefficients on the dummies for every day except Wednesday (table 5 and 6).) in all stocks and in CNX Nifty. During pre future/option period, week day effect was present everyday (at 1% level of significance) except Wednesday while during post introduction period there was no week day effect (Table 7 and 8).

Persistency Analysis: The sum of the coefficients of ARCH and GARCH approaching unity, indicating a large degree of persistence in all stocks and nifty, hence it can be concluded that bigger shocks had been decayed with time in CNX S&P Nifty and other stocks

FnO Effect: after the analysis of table 7 and 8, it was found that GARCH coefficient accept the null hypothesis ($\beta 2 = 0$) during post future/option period, hence it can be concluded that there was no effect of future and option on the spot market volatility in our sample..

Chow Test: The computed F value (7, 3254) was 21.053, which exceeded the value of 2.64, and therefore, the hypothesis of parameter stability was rejected. This suggests that the regression coefficients were statistically different before and after futures listing and it can be concluded that there was change in the volatility pattern, after the introduction of future and option. Similar results were found in all stock.

8. CONCLUSION

We have studied the behaviour of volatility of stock market after introduction of future by using GARCH (1, 1) model. We have considered S&P CNX Nifty and 5 individual stocks of which all are derivative stock. The results suggest that the introduction of derivatives does not have any stabilizing (or destabilizing) effect in terms of decreasing (or increasing) volatility

In case of index future, the volatility in the S&P CNX Nifty has declined after the introduction of S&P CNX Nifty future but the magnitude of dummy variable is very low which shows decline in volatility is very low. In case of all stocks, it shows a decrease in volatility. Nifty shows changing patterns of volatility. The day-of-the-week effects has been dissipated after futures introduction

The model was estimated separately for the pre and post futures period and find that the nature of the GARCH process has changed after the introduction of the futures trading. Pre-futures, the effect of information was long lasting, i.e. a shock to today's volatility due to some information that arrived in the market today, has an effect on tomorrow's volatility and the volatility for days to come. After futures contracts started trading the persistence has disappeared. Thus any shock to volatility today has no effect on tomorrow's volatility or on volatility in the future. This indicates that increasing market efficiency, since all information is incorporated into prices immediately.

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Undesirable Output And Technical Efficiency: Evidence From Indian Life Insurance Industry

Dr. Ram Pratap Sinha

Abstract:

The life insurance sector suffers from the problem of policy lapsation which is an undesirable output in the context of this sector. Unfortunately, this undesirable output has not been taken into consideration in any of the efficiency studies in the context of the sector. The present paper makes a humble attempt to integrate the same in the context of efficiency analysis of the Indian life insurance sector for the period 2005-06 to 2009-10 using the Seiford-Zhu(2002) model.

Key words:

Life Insurance, Lapse Rate, Efficiency Evaluation, Undesirable Output
J.E.L. Classification-G-21,C-61

Introduction:

The Indian life insurance sector has undergone significant structural changes consequent on the deregulation of the sector in the end-1990s as an attempt to foster liberalization of financial services. Following the entry of several private sector life insurance companies (with equity participation from established foreign insurers), the life insurance companies operating in India have made significant progress recently in terms of business consolidation. Thus the total premium collected by them has gone up from Rs 105876 crores in 2005-06 to Rs 265450 crores in 2009-10 and the total asset under management of the life insurance companies grew from Rs487151 crores in 2005-06 to Rs 1205155 crores in 2009-10 .

However, the life insurance sector suffers from a reasonably high rate of policy lapsation which is an unwarranted output from the stand point of both policy holders and insurance companies. Yet this undesirable outcome has not been taken into consideration by any of the efficiency studies applied to the life insurance sector so far. The present paper makes a humble attempt towards that end.

Organisation of the Paper:

The paper is organized in to five sections and proceeds as follows. Section 1 provides an overview of the recent growth experience in the context of the Indian life insurance sector.

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Section 2 gives a brief introduction of policy lapsation. Section 3 considers the various methodological issues corresponding to the valuation of undesirable outputs and provides a brief review of the important contributions. Section 4 provides the framework of the present study and states the results. Section 5 concludes.

Section 1: Indian Life Insurance Sector: An Overview

Economic reforms in India initiated in the early 1990s saw the liberalisation of insurance business become an integral component of the government's policy agenda. In 1993, the Central Government constituted a Committee under the Chairmanship of Shri R.N. Malhotra to suggest the roadmap for insurance sector reform. The Committee submitted its report in 1994 in which it favoured a gradual liberalisation of insurance business in India , segregation of non-life and life business and the introduction of prudential solvency based regulation of the insurance sector. In 1999 an Insurance Regulatory Authority Act was promulgated for creating the necessary regulatory framework. The new regulator, Insurance Regulatory and Development Authority (IRDA) took office at the same time to oversee and regulate the market. Between 1999 and 2012, the number of players in the Indian life insurance market increased from one to twenty three.

Trend in the Growth of Life Insurance Business:

In recent times, the Indian life insurance market is attracting intense attention, partly because of the fast expansion of the market and also due to the fact that this growth potential is now available to the private sector as all (subject to the regulatory cap on foreign equity holding).Table 1 provides a snapshot of the growth in the sale of life insurance policies, premium collected and the asset under management of the life insurance companies.

Table 1: Growth of Life Insurance Business in India

Particulars	2005-06	2006-07	2007-08	2008-09	2009-10
Sale of New Life Insurance Policies (Rs Lakhs)	354.62	461.52	508.74	509.23	532.25
Collection of Premium (Rs Crores)	105876	156076	201351	221785	265450
Total Asset Under Management (Rs Crores)	4871510	6041800	7659690	9163650	1205155

Source: IRDA Annual Reports, 2005-06 to 2009-10.

Section 2: A Primer on Policy Lapsation:

In the context of life insurance companies, lapsation of policies purchased by the insured population is an undesirable output having significant impact on the society as well as on the health of the insurance sector. Speaking less technically, policy lapsation refers to the discontinuance of life insurance policies because of non-payment of premium due in respect of such policies. It is however, essential to distinguish between surrender and lapsation of policies at this juncture. Policy surrender corresponds to the exercise of an early exit option

(as per the provisions of the policy) by the policy holder Kannan et.al. (2008) studied the impact of policy lapsation on the Indian life insurance industry for the period 2002-07 on the basis of data obtained from 16 life insurance companies. Table 2 provides an outline of overall lapse rate for the aforementioned period while table 3 provides the details relating to policy/premium lapsation on a year wise basis for the entire period.

Table 2: Overall Lapse Rate for the Life Insurance Companies (2002-03 to 2006-07)

Particulars	Lapses	Exposed to risk	Ratio
No of Policies	5.226 Crore life-years	73.419 Crore life-years	7.11%
Premium	Rs. 20,521.501 Crore	Rs. 3,36,183.058 Crore	6.10%

Source: Kannan, Sarma, Rao and Sarma (2008).

Table 3: Trend in Lapse Rate for the Life Insurance Companies (2002-03 to 2006-07)

Particulars	2002-03	2003-04	2004-05	2005-06	2006-07
No of Policies	5.62%	7.76%	7.79%	7.60%	6.64%
Premium	4.40%	5.91%	6.70%	6.95%	6.18%

Source: Kannan, Sarma, Rao and Sarma (2008).

Table 3 shows that the industry lapse rate with respect to number of policies increased from 5.62% to 7.79 % between 2002-03 to 2004-05 and decreased slowly thereafter. Lapse rate with respect to premium increased from 4.40% to 6.95% between 2002-03 and 2005-06 but declined to 6.18% in 2006-07. The lapse rate on premium basis is lower because fewer policies with larger premium were discontinued.

Duration wise decomposition of policies which lapsed during the period showed that the incidence of lapsed is highest in case policies completing a period of 0-1 year. Only 3% Of the policies which lapsed were revived later on.

Section 3 :Undesirable Outputs in Efficiency Valuations: The Methodological Issues

Productive efficiency of a productive unit can be measured by comparing its performance with the best practice unit in the industry following the same technology. There are, however, two major alternative approaches towards defining technical efficiency: the Pareto-Koopmans approach and the Debreu- Farrell approach.

(a) The Pareto-Koopmans Approach: As per Koopmans (1951), a producing firm is technically efficient if an increase in any output necessitates a reduction in at least one other output or a increase in atleast one input, and if a reduction in any input necessitates an increase in at least one other input or a reduction in at least one output. This approach is called Pareto-Koopmans approach because of its Paretian implication.
(b) The Debreu-Farrell Approach: This approach provides a radial measure of efficiency. This approach has developed due to two seminal papers byby Debreu (1951) and Farrell (1957). For output maximisation, the Debreu-Farrell measure is defined as 1-q, where q is the maximum equiproportionate expansion in all outputs with given input. For input minimisation,the Debreu-Farrell measure is 1-i where i is the maximum equi-proportionate reduction in all inputs. A score less than unity (i.e. 1-q<1 or 1-i<1) implies that the firm is technically inefficient.

Measurement of Technical Efficiency:

Researchers frequently make use of data envelopment analysis for evaluating the relative efficiencies and inefficiencies of peer decision making units (DMUs) which produce multiple outputs and multiple inputs. Data Envelopment Analysis (DEA) is a non-parametric mathematical programming technique used for assessing/evaluating and comparing the relative performances of economic units with minimal prior assumption on input-output relation. The DEA method is a generalisation of Farrell's Single input single output technical efficiency measure to the multiple output- multiple input case. The methodology was originally developed by Charnes, Cooper and Rhodes (1978) and was later further extended by Banker, Charnes and Cooper (1984).

The DEA approach constructs the efficiency frontier out of piecewise linear stretches thereby forming a convex production possibility set. In DEA frontier, efficient observations are those for which no other decision making unit or linear combination of units has as much or more of every output (given inputs) or as little or less of every input (given outputs). It envelops data sets and therefore makes no room for noise.

Once DEA identifies the efficient frontier, DEA improves the performance of inefficient DMUs by either increasing the current output levels or decreasing the current input levels. In the presence of undesirable outputs, however, such exercise is likely to give erroneous results. This is because, in such cases undesirable/bad outputs are to be decreased while good outputs are to be increased. The problem with the standard DEA model is that decreases in outputs are not allowed and only inputs are allowed to decrease. (Similarly, increases in inputs are not allowed and only outputs are allowed to increase.)

In the efficiency literature, one finds several approaches for accommodating undesirable outputs in data envelopment analysis. Pittman (1981) provided an asymmetric treatment of desirable and undesirable outputs in the process of performance measurement of 30 paper mills in the United States. For the purpose of benchmarking, he used the Caves, Christensen and Diewert (1982a,1982b) multilateral productivity index.

Fare et. Al. (1989) modified the Farrell measure of efficiency to accommodate both desirable and undesirable factors in the context of a productive system where the two sets of factors are treated differently. The modification allowed asymmetric treatment of inputs, desirable outputs and undesirable outputs and consequently they were able to generate several hyperbolic efficiency measures.

Scheel (2000) proposed efficiency measures which are oriented to desirable and undesirable outputs respectively. The technical efficiency measures suggested by Scheel are based on the assumption that any change in output levels involves both desirable and undesirable outputs.He found that this non-separable output measure assigns technical efficiency scores to decision making units which are significantly lower than those applicable separable output efficiency measures.

Seiford and Zhu (2002) used data translation as a means of integrating undesirable inputs/outputs into DEA. In case of undesirable outputs, they suggested the multiplication of each such output by -1 and finding out a proper translation vector such that all negative undesirable outputs can be converted into positive desirable output. Maximisation of the modified output will tantamount to minimization of 'undesirable output'.

Based on his Slacks based Measure Model (2001),Tone (2003) proposed a non-parametric DEA scheme to measure technical efficiency in the context of undesirable ouputs.The method is non-radial and non-oriented in nature and makes use of input and output slacks directly in producing the measure of technical efficiency.

Approach of the Present Paper:

In the present paper we make efficiency valuation of 15 Indian life insurance companies for the period 2005-06 to 2009-10 using the Seiford-Zhu approach. The mathematical details of the same are spelt out in brief in the next paragraph.

Suppose that there are n DMUs (decision making units) each having three factors: inputs, good outputs and bad (undesirable) outputs, as represented by three vectors $x_i \in R^m$, $y^g = R^{s1}$, $y^b = R^{s2}$ respectively. We define the matrices $X = [x_1, x_2, \ldots, x_n] \in R^{mxn}$, $Yg = [y_1^g, \ldots\ldots, y_n^g] \in R^{s_1 xn}$ and $Yb = [y_1^b, \ldots\ldots, y_n^b] \in R^{s_2 xn}$. We assume that $X>0, Y_b>0, Y_g>0$. We define the production possibility set as $P=\{(x,y^b,y^g) \mid x \geq X\lambda,\ y^g \leq Y^g\lambda,\ y^b \geq Y^b\lambda, \lambda \geq 0\}$ where $\lambda \in R^n$ is the intensity vector.

In the absence of any undesirable output, i.e. when Yb =0 output oriented technical efficiency (under variable returns to scale) can be obtained by calculating the following linear programming problem:

$$\text{Max } \theta \qquad (1)$$

$$\text{Subject to, } \theta y_0 \leq \lambda Y,\ x_0 \geq \lambda X,\ \sum\lambda = 1$$

$$\text{Technical Efficiency} = 1/\theta$$

However, the BCC measure of technical efficiency is inappropriate in the presence of undesirable outputs.

To take care of this problem, Seiford and Zhu (2002) multiplied each undesirable output by -1 and found an appropriate translation vector w such that all negative undesirable outputs become positive. The jth translated bad output is related to the original bad output in the following manner:

$$y^{b*} = -y^{b} + w > 0$$

Under the circumstances, the optimisation program becomes

$$\sum Z_i y_j^g \geq h y^g{}_0, \sum Z_j y_j^{b*} \geq h y^b{}_0$$
$$\sum Z_j x_i \leq x_0, \sum Z_j = 1, Z_j \geq 0$$
Technical Efficiency=1/h

Note that (2) expands desirable outputs and contracts the undesirable outputs

Section 5: Description of Inputs/Outputs and the Results:

(a) Choice of Output /Input:

Defining outputs of insurance firms is a challenging task. Most of the life insurance cost studies focusing on economies of scale and scope, used premiums as proxies for outputs (e.g., Grace and Timme, 1992, and Gardner and Grace, 1993). However, some argued that premiums are not the quantity of outputs but the revenue (price times quantity) (Doherty, 1981, Yuengert, 1993).

As such,the outputs of life insurers may be measured by the services they provide to customers. In general, life insurers provide two principal services: risk bearing/risk pooling services and intermediation services. Life insurers mobilise premia and annuity considerations from policy holders. On the other hand most of the funds are paid to those policyholders who sustain losses (the risk bearing/risk pooling service). Funds are collected in advance of paying benefits and held in reserves until claims are paid (the intermediation service).

In the Indian context, however, most of the insurers are less than ten years old and insurance contracts being long term contracts, performance comparison in terms of benefits paid to the policyholders creates obvious difficulties. In view of this, the present paper considers the Sum Assured as the desirable output. Sum assured is an indicator of the insurance coverage provided by the life insurance companies to the insured persons. The paper includes one undesirable output: Lapsed Sum Assured. Unfortunately, we have no information about the magnitude of loss of premium income due to policy lapsation. Further, operating expenses related to insurance business and commission expenses paid to the agents have been taken as the proxy for the inputs used by the life insurers. The production relation, therefore, is: Output (Sum Assured, Lapsed Sum Assured) =f (Operating Expenses, Commission Expenses). Estimates have been made for the years: 2005-06,2006-07 , 2007-08, 2008-09 and 2009-10. Estimation is limited to only those companies which were in existence during the entire period i.e. 2005-06 to 2009-10. We have fifteen such life insurance companies.

(b) Descriptive Statistics of Efficiency Measures:

Table 4 provides the descriptive statistics of efficiency measures as per the Seiford-Zhu approach.

Table 4: Descriptive Statistics of Efficiency Measure: Seiford-Zhu Approach

Particulars	2005-06	2006-07	2007-08	2008-09	2009-10
No. of DMUs	15	15	15	15	15
No. of Efficient DMUs	6	5	6	6	3
Mean Efficiency	0.9922	0.9916	0.9896	0.9902	0.9465
SD	0.0107	0.0109	0.0158	0.0172	0.0728
Maximum	1	1	1	1	1
Minimum	0.9712	0.9621	0.9469	0.9330	0.7204

Source: Calculated.

(c) Ownership and Technical Efficiency: LIC and Private Players

Prior to 2000-01, the Life Insurance Corporation of India had a monopoly over the life insurance business for a period spanning 44 years. Given the change in competition scenario, how the private life insurance companies have performed vis a vis LIC? Table 5 provides a comparison.

Table 5: Mean Technical Efficiency of Life Insurers: LIC vs. Private Players (Seiford-Zhu Measure)

Particulars	2005-06	2006-07	2007-08	2008-09	2009-10
LIC	15	15	15	15	15
Private Life Insurance Companies	0.9916	0.9911	0.9889	0.9895	0.9426
All	0.9922	0.9916	0.9896	0.9902	0.9465

Source: Calculated.

(d) A Comparison with BCC Model:

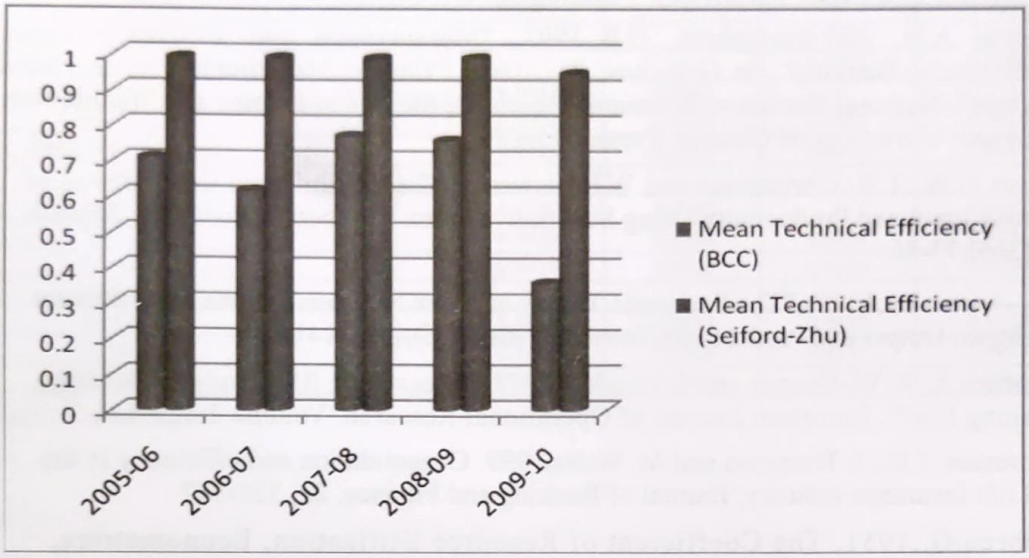
One is interested to know how the incorporation of undesirable output has modified our results. In order to see this, the undesirable output (lapsed sum assured) is dropped, and BCC(1984) has been applied to the data for the computation of technical efficiency. The results are then compared with the Seiford-Zhu model results obtained earlier. Table 6 provides a comparison of the results and diagram 1 provides a graphical presentation.

Table 6 : Comparison of BCC and Seiford-Zhu Models

Particulars	2005-06	2006-07	2007-08	2008-09	2009-10
Efficient Insurers (BCC)	4	2	2	3	3
Efficient Insurers (Seiford-Zhu)	6	5	6	6	3
Mean Technical Efficiency (BCC)	0.7099	0.6188	0.7716	0.7589	0.3596
Mean Technical Efficiency (Seiford-Zhu)	0.9922	0.9916	0.9896	0.9902	0.9465

Source: Calculated.

Diagram 1: A Comparison of BCC and Seiford-Zhu Technical Efficiency Scores



Section 6: The Concluding Observations:

In the current paper the performance of 15 life insurance companies operating in India has been compared for a five year period using the Seiford-Zhu (2002) model for accommodating undesirable output in performance benchmarking. The results show that two life insurers were efficient for all the observed years under both the methods. They are LIC and Aviva life insurance. For the remaining 13 life insurance companies the 5 year mean technical efficiency remained below 1.Table 7 provide a comparison of averages for the observed five year period.

Table 7: Insurer Wise Mean Technical Efficiency and Ranks

Insurer	Mean Technical Efficiency (Seiford-Zhu)	Rank (Seiford -Zhu)
Aviva	1	1
Bajaj Allianz	0.9736	12
Birla Sunlife	0.9975	5
HDFC Standard Life	0.9922	7
ICICI Prudential	0.9348	15
ING Vysya	0.9838	10
Kotak Life Insurance	0.9874	8
LIC	1	1
Max New York Life	0.9641	13
Met Life	0.9804	11
Reliance	0.9926	6
Sahara	0.9998	3
SBI Life	0.9840	9
TATA AIG	0.9418	14
Shri Ram Life	0.9981	4

Source: Calculated.

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Insurer	2005-06	2006-07	2007-08	2008-09	2009-10
Aviva	1	1	1	1	1
Bajaj Allianz	0.9728	0.9871	1	1	0.9081
Birla Sunlife	1	1	1	0.9980	0.9893
HDFC Standard Life	1	1	1	0.9819	0.9793
ICICI Prudential	0.9996	0.9863	0.9675	1	0.7204
ING Vysya	0.9868	0.9909	0.9940	0.9856	0.9619
Kotak Life Insurance	1	0.9991	0.9928	0.9843	0.9609
LIC	1	1	1	1	1
Max New York Life	0.9712	0.9770	0.9685	1	0.9037
Met Life	0.9852	0.9859	0.9932	0.9931	0.9446
Reliance	0.9960	0.9918	0.9928	0.9928	0.9896
Sahara	0.9990	1	1	1	1
SBI Life	0.9949	0.9948	0.9933	0.9857	0.9515
TATA AIG	0.9773	0.9621	0.9469	0.9330	0.8897
Shri Ram Life	1	0.9997	0.9949	0.9983	0.9978

Source: Calculated.

Performance Evaluation of SBI Mutual Fund

Dr. James Thomas

Abstract:

The financial system of a country is of immense use in its economic development, adequate capital formation is indispensable to economic development and financial markets are of crucial importance for capital formation. In this process of economic development mutual funds emerged as strong financial intermediaries and are playing a very important role in bringing stability to the system and efficiency to resource allocation. This study is helpful in tracing the performance of top mutual funds and to compare the mutual fund based on the risk bearing capacity and expected returns of the investors and will also carry out an analysis of the portfolio of the selected mutual fund.

Introduction:

Mutual Funds clearly have a significant role to play in financial development. Their modus operandi of aggregating pools of saving from a large number of retail investors and deploying these resources in a variety of financial markets, based on different risk-return preferences simultaneously enhances efficiency, stability and inclusion. With emerging markets (including India, China and Brazil) gaining recognition rapidly international funds have been furiously earmarking a large portion of their allocation to developing countries. In a present volatile market situation choosing a right avenue to invest savings is very complicated task and the investor as to be alert while taking the investment decision. The mutual funds also one of the choices among various alternatives of investment and it is emerging as a major choice for small investors who expecting more returns with calculated risk. The study is basically made to evaluate the performance of the SBI Mutual Funds selected schemes and its rivalries and also guides the investor in selecting the right fund. Only three most preferred Equity Growth schemes i.e. SBI Magnum equity Fund, SBI Magnum Tax Gain Fund and SBI Emerging Business Fund (Mid Cap Scheme) of SBIMF and Similar competitive schemes are taken for analysis.

Statement of the problem:

Mutual funds are the important instruments to invest the savings and the investor can expect maximum returns with diversified risk. Since there are multiple mutual funds operating in the competitive market situation with hundreds of schemes and different options. It is very necessary to know the performance of different mutual fund to choose right place to invest the money which yields high returns with minimum risk. The primary purpose of this study is to analyze the risk, return and performance of various schemes at

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SBI Mutual Fund and its competitors. The statistical tools such as Mean returns, Standard deviation, Beta, Alpha and also theoretical parameters such as Sharpe's performance index, Treynor's index and Jensen index has used for analysis.

Objectives of the study:

1. to trace the performance of SBI Mutual Fund selected Schemes.
2. to analyze the effect of market on NAV's of mutual funds.
3. to rank the mutual funds based on their performance
4. to guide the investor in selecting funds for investment

Scope of the study:

The study is conducted to evaluate the performance of SBIMF selected schemes based on, internal analysis, Comparing the performance with competitive schemes and Comparing the risk and returns of SBIMF with market risk and returns. Hence the area of study is restricted to only 3 most preferred schemes of 6 mutual funds. Only the quantitative techniques such as Mean returns, Standard deviation, Beta, Alpha and also theoretical parameters such as Sharpe's performance index, Treynor's index and Jensen index has used for analysis. The present study includes 6 years annualized average returns of mutual funds.

Research design:

The study followed descriptive research design. In this study an attempt has been made to analyze the past performance of the SBI Mutual Funds in relation to, Risk and return analysis of the Fund, Comparing the performance with competitive schemes of mutual fund and Comparing the risk and returns of SBI mutual fund with market risk and returns. The study is done on 3 different schemes to know the company's performance and the Net Asset Values is taken as a base for calculating the annualized returns.

Sources of data collection:

Secondary data is used which is obtained from various mutual fund schemes, material given by company, investor's magazines, annual reports, text books and various websites.

Limitations of the study:

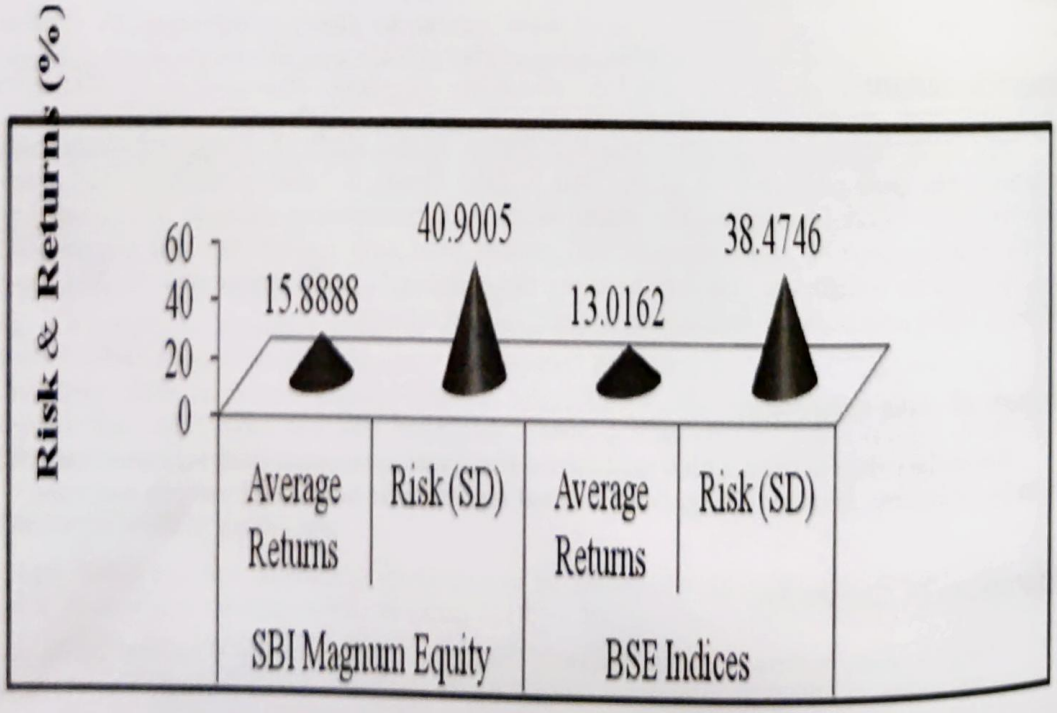
Only 3 most preferred Equity Growth Oriented schemes of top 6 mutual funds are selected for analysis where as numerous mutual funds available in the market. The study is mainly covers only mutual fund industry and security market (BSE). The study is related to performance evaluation only for 6 years and NAV's had taken as a base for calculating annualized returns. For calculating annualized returns only year beginning and year ending NAV's are considered i.e. 1st April and 31st March.

Analysis and interpretation

Table :1 Comparative analysis of SBI Magnum Equity Fund's risk and return with market:

Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Fund returns	29.1016	-37.777	85.581	8.34359	-3.9136	13.9977
BSE returns	25.604	-37.872	77.013	9.906	-10.382	13.828

SBI Magnum Equity		BSE Indices	
Average Returns	Risk (SD)	Average Returns	Risk (SD)
15.8888	40.9005	13.0162	38.4746



From the above analysis it can be inferred that the SBI Magnum Equity Fund has performed extremely well as compare to the market. Hence it has yield 2.5% more returns with 1.5% of excess risk than the BSE indices.

Table :2 Brief Summary of performance the Equity Fund analysis to guide the investors:

Fund Name	Average returns	Risk (Stdev)	Beta	Alpha	Sharpe's Rank	Treynor's Rank	Jensen's Rank
HDFC Equity Fund (G)	21.1223	50.264	1.277	4.50425	2	2	1
Reliance Growth Fund	19.113	49.6412	1.27252	2.549	3	3	3
ICICI Prudential Equity Fund (G)	13.929	39.956	1.032	0.49766	6	6	6
Birla Sun Life Equity Fund (G)	15.6883	47.1035	1.21415	0.011	5	5	5
UTI Equity Fund (G)	18.0318	37.163	0.96403	5.4838	1	1	2
SBI Mangum Equity (G)	15.8888	40.90	1.0596	2.09684	4	4	4
BSE Indices	13.0162	38.4746	-	-	-	-	-

Table:3 Overall performance ranking of Equity Fund based on the above summarized Analysis:

Fund Name	Rank	Description
UTI Equity Fund (G)	1	It has lowest SD and Beta, moderate returns, highest Alpha and performing better than any other fund.
HDFC Equity Fund (G)	2	It has low SD and Beta, highest returns, high Alpha and well performing Fund
Reliance Growth Fund	3	It has ranked No.3 in terms of performance, it has high returns than the UTI but SD is very High.
SBI Mangum Equity (G)	4	It has satisfactory performance and Ranked No.4 by all 3 performance measuring Index.
Birla Sun Life Equity Fund (G)	5	It has returns almost equal to SBI but the SD is very High and the Alpha value is very low.
ICICI Prudential Equity Fund (G)	6	It has high SD, low Alpha and also average Returns.

From the above analysis it can be inferred that UTI has performed extremely well. The investors can prepare this Fund for investment and the person who ready to take high risk can go for HDFC Equity Fund since it has highest returns. SBI Equity Fund also performing well and the moderate risk expected persons can prepare this Fund for invest.

Table: 4. Comparative analysis of SBI Magnum Tax Gain Fund's risk and return with market:

Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Fund returns	23.5067	-39.273	84.37	2.03839	-4.8124	12.5633
BSE returns	25.604	-37.872	77.013	9.906	-10.382	13.828

SBI Magnum Equity		BSE Indices	
Average Returns	Risk (SD)	Average Returns	Risk (SD)
13.0655	40.9247	13.0162	38.4746

From the above analysis it can be inferred that the SBI Magnum Tax Gain Fund performed as equal to the market.

Table :5 Showing brief Summary of the Equity Tax Gain Fund analysis to guide the investors.

Fund Name	Average returns	Risk (Stdev)	Beta	Alpha	Sharpe's Rank	Treynor's Rank	Jensen's Rank
HDFC TaxSaver (ELSS)- Growth	18.466	49.0057	1.23962	2.33088	2	2	2
Reliance Tax Saver (ELSS) Fund (G)	15.650	40.2568	1.0056	2.56087	3	3	3
ICICI Prudential Tax Plan - (G)	20.086	53.3445	1.34257	2.6114	1	1	1
Birla Sun Life Equity Fund -tax gain (G)	12.273	37.9822	0.98328	-0.5252	6	6	6
UTI Equity Tax Savings Plan – (G)	12.389	37.0544	0.9614	-0.125	5	5	5
SBI Magnum Tax Gain Scheme (G)	13.066	40.9247	1.05524	-0.6697	4	4	4
BSE Indices	13.0162	38.4746	-	-	-	-	-

Table:6 Overall Performance Ranking of Equity Tax Gain Fund based on the above summarized Analysis:

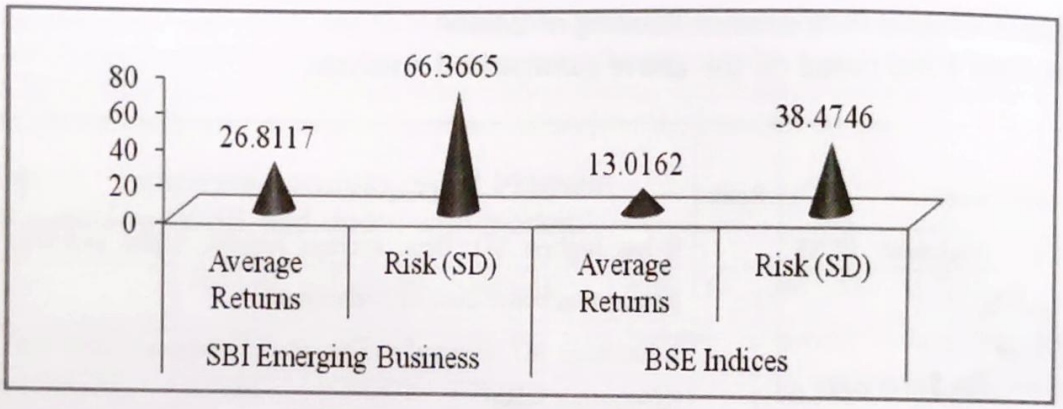
Fund Name	Rank	Description
ICICI Prudential ELSS Fund (G)	1	It has highest SD, Beta, average returns, Alpha and also performing better than any other fund.
HDFC Tax Saver (G)	2	It has high SD, average returns, Beta, Alpha and also well performing Fund
Reliance Tax Saver (G)	3	It has ranked No.3 in terms of performance, it has high returns, Alpha and comparatively low Beta.
SBI Mangum Tax Gain (G)	4	It has satisfactory performance and Ranked No.4 by all 3 performance measuring Index.
UTI Equity Tax Saving (G)	5	It has lowest Beta value but the returns are low and the Fund has Negative Alpha.
Birla Sun Life ELSS Fund (G)	6	It has high SD, low Alpha and also average Returns.

From the above analysis it can be inferred that ICICI Prudential ELSS has performed extremely well. The investors can invest in this Fund for investment and the person who is not ready to take high risk can go for HDFC ELSS and Reliance Tax Saver Fund since it has high returns and moderate risk. SBI Equity Fund also performing well and the moderate risk expected persons can select this fund.

Table:7 Showing the Comparative Analysis of SBI Emerging Business Fund with market.

Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Fund returns	22.632	-58.169	145.56	9.5054	8.291	33.047
BSE returns	25.604	-37.872	77.013	9.906	-10.382	13.828

SBI Emerging Business		BSE Indices	
Average Returns	Risk (SD)	Average Returns	Risk (SD)
26.8117	66.3665	13.0162	38.4746



From the above analysis it can be inferred that the SBI Emerging Business Growth Fund performed extremely well as compare to the market. Hence it has yield 26.812% which is more than double as compare to BSE returns with 27.892% of excess risk than the BSE indices.

Table :8 Performance summary of selected Top Mutual Funds- Equity Mid Cap Scheme (G):

Fund Name	Average returns	Risk (Stdev)	Beta	Alpha	Sharpe's Rank	Treynor's Rank	Jensen's Rank
SBI Emerging Buss Fund - Growth	26.812	66.3665	1.67047	5.0686	1	1	1
HDFC Mid-Cap Fund(G)	19.850	53.5089	1.25958	2.2702	3	2	3
UTI Mid Cap Fund - Growth	20.081	56.8845	1.42342	0.4719	4	4	4
L&T Midcap Fund - Growth	20.320	61.3813	1.54988	0.1465	5	5	5
Sundaram Select Midcap - Growth	22.138	60.7766	1.52042	2.3481	2	3	2
Kotak Midcap Fund - Growth	16.489	50.9263	1.28295	-0.2099	6	6	6
Market Indices (BSE)	13.0162	38.4746	-	-	-	-	-

Table: 9 Overall Performance Ranking of Equity Mid Cap Fund based on the above summarized Analysis:

Fund Name	Rank	Description
SBI Emerging Buss Fund - Growth	1	It has highest SD, Beta, returns, Alpha and also performing extremely better than any other fund.
Sundaram Select Midcap - Growth	2	It has high SD, returns, Beta, Alpha and also well performing Fund.
HDFC Mid-Cap Fund(G)	3	It has ranked No.3 in terms of performance, it has high returns, Alpha and comparatively lowest Beta.
UTI Mid Cap Fund - Growth	4	It has satisfactory performance and Ranked No.4 by all 3 performance measuring Index.
L&T Midcap Fund - Growth	5	It has lowest Beta value but the returns are low and the Fund has Negative Alpha.
Kotak Midcap Fund - Growth	6	It has high SD, negative Alpha and also average Returns.

From the above analysis it can be inferred that SBI Emerging Business Fund has performed extremely well. The investors can prepare this Fund for investment and the person who has expecting moderate risk and returns can go for HDFC Mid Cap Fund since it has high returns and moderate risk. Sundaram Mid Cap Fund also performing well.

Findings:

The Mutual Funds are highly volatile and there is no consistent or continuous return because of these reasons investors are losing trust on Mutual Fund investments and shifting to some other less risky and fixed interest bearing instruments. All the mutual fund companies have over – performed in the market (BSE 100) by the healthy margin over the period of last 6 years. The Mutual Fund Returns and overall performance is better than the BSE Indices. The SBI Mutual Fund's two Schemes such as SBI Magnum Equity Fund and SBI Magnum Tax Gain Fund ranked number "Four" out of Top 6 Funds in term of overall performance. The SBI Emerging Business Fund ranked Number "one" in terms of fund performance. It has extremely good returns from past 6years i.e. 26.812% (average annualized returns) and performing better than any other Funds.The UTI Equity Growth Fund Ranked number "One" in terms of fund performance. It yields good return from past 6years (average annualized returns of 18.0318%) and has very low Beta (37.16%) and Alpha (0.964%) as compare to other Top 5Funds.The SBI Emerging Business fund Manager's Performance is very good. Hence if the market gives 0% returns the Fund can able to yield 5.07%.The UTI Equity Fund Manager managed the Fund very efficiently.

Hence the Fund can able to yields 5.48%, if the market gives 0% returns. The HDFC Mutual Fund's two Schemes such as HDFC Equity Fund and HDFC Tax saver Fund Ranked number "second" out of Top 6 Funds in terms of overall performance. Hence both the Funds have good returns and consistent performance since 6 years. Reliance Mutual Fund's Equity Fund and Tax Saver Scheme Ranked Number "Three" in terms of overall performance out of Top 6 Funds. ICICI Prudential Tax Saver Scheme Ranked Number "One" out of Top 6 Funds from the Tax Gain segment. The Mutual Funds performance is highly dependent on the performance of market and the economy. If the economy is healthy then all the mutual funds will perform well and if not all Fund will give the worst results.

Observations:

Consistent returns and Security are the major factors that made investors to invest in mutual funds and create trust on mutual fund investments. Most of the young investors would not like to take risk and they prepare Public provident fund and other risk free instruments instead of Mutual Funds. The investors do not have clear idea about when to buy and when to sell the Fund. The mutual fund returns are highly deviating and it is not stable. The investors cannot predict or expect the returns. Awareness about the mutual funds is very less and very little percent of the investor are participating.

Recommendations and Conclusion:

In Mid Cap Equity Growth Segment the investor can prepare SBI Emerging Business Funds for investment. This fund yields very good return and risk associated with this fund also high and it is performing better than any other Fund in this segment. The less risk appetite person can go for HDFC Mid Cap opportunities fund in Mid Cap Equity Growth segment. This fund has good returns with comparatively less risk and overall performance also good. In Equity Growth segment the investors can prepare UTI Equity Growth Fund for investment. This fund performing extremely well and it yields very good return with moderate risk. The high returns expected person can go for HDFC Equity Growth Fund in Equity Growth segment. It yields very high return but the risk associated with this fund also very high. India is undoubtedly emerging as the next big investment destination, riding on a high savings and investment rate and it creates great scope for the growth of mutual funds. The mutual fund returns are unstable, high risky and there is a great volatility in the returns. The investors of the mutual fund facing big challenge in selecting the right fund for investment. In order to make Mutual Funds more acceptable to the investor, the mutual fund industry has to mature to offering comprehensive life cycle financial planning and not the products alone.

The study is conducted on "Performance Evaluation of SBI Mutual Fund Selected Schemes in Relation to Risk-Return, Rivalry's and Market Comparison." only for those most preferred funds which come under equity growth based category and the risk, returns, ranking and comparison is an only opinion on the relative past performance of the mutual fund schemes. This is helpful to a great extent for the existing investor and potential investors in selecting the right fund. The existing investors can check whether their investment is with the right equity funds and the risk associated with the funds is acceptable for them. For the potential investors, the study would helps in identifying the right equity funds as per their returns expectation and risk appetite. On the basis of

comparative analysis, it can be concluded that SBI Mutual Fund is doing well as compared to market benchmark. But as compare to the competitive funds the SBI Mutual Fund failed to stand at the top even though it has 25 year of existence and rich experience. Still it is managing some of the funds well and the performance is satisfactory. The SBI Mutual Fund achieved comparatively less fund management cost and less deviation in the return.

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MICROFINANCE INSTITUTION IN PROMOTING WOMEN ENTREPRENEURSHIP

Monalika Dey

Abstract:

Under the trickle down theory in the planning process it was expected that women will equally benefit along with men. This has been belied by actual developmement. The ninth plan document recognizes that inspite of development measures and constitutional legal guarantees- women have lagged behind in almost all sectors.

In India, the emergence of liberalization and globalization in early 1990's aggravated the problem of women workers in unorganized sectors from bad to worse asmost of the women who were engaged in various self employment activities have lost their livelihood. Despite in tremendous contribution of women to the agriculture sector, their work is considered just an extension of household domain and remains non-identified.

Microfinance is emerging as a powerful instrument for poverty alleviation in the new economy. In India, Microfinance scene is dominated by Self Help Group (SHGs)-Bank Linkage Programme as a cost effective mechanism for providing financial services to the "Unreached Poor" which has been successful not only in meeting financial needs of the rural poor women but also strengthen collective self help capacities of the poor ,leading to their empowerment. Rapid progress in SHG formation has now turned into an empowerment movement among women across the country.

Introduction:

Economic empowerment results in women's ability to influence or make decision, increased self confidence, better status and role in household etc. Micro finance is necessary to overcome exploitation, create confidence for economic self reliance of the rural poor, particularly among rural women who are mostly invisible in the social structure.

This paper puts forward how micro finance has received extensive recognition as a strategy for economic empowerment of women. This paper seeks to examine the impact of Micro finance with respect to poverty alleviation and socioeconomic empowerment of rural women with the help of some case studies. An effort is also made to suggest the ways to increase women empowerment.

Empowerment implies expansion of assets and capabilities of people to influence control and hold accountable institution that affects their lives (World Bank Resource Book).

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Empowerment is the process of enabling or authorizing an individual to think, behave, take action and control work in an autonomous way. It is the state of feelings of self-empowered to take control of one's own destiny. It includes both controls over resources (Physical, Human, Intellectual and Financial) and over ideology (Belief, values and attitudes) (Batliwala, 1994).

Empowerment can be viewed as a means of creating a social environment in which one can take decisions and make choice either individually or collectively for social transformation. It strength innate ability by way of acquiring knowledge power and experience.

Empowerment is a multi-dimensional social process that helps people gain control over their own lives communities and in their society, by acting on issues that they define as important. Empowerment occurs within sociological psychological economic spheres and at various levels, such as individual, group and community and challenges our assumptions about status quo, asymmetrical power relationship and social dynamics. Empowering women puts the spotlight on education and employment which are an essential element to sustainable development.

Structure of Microfinance Institutions in our country

In India, the trickle down effects of macroeconomic policies have failed to resolve the problem of gender inequality. Women have been the vulnerable section of society and constitute a sizeable segment of the poverty-struck population. Women face gender specific barriers to access education health, employment etc. Micro finance deals with women below the poverty line. Micro loans are available solely and entirely to this target group of women. There are several reason for this: Among the poor , the poor women are most disadvantaged –they are characterized by lack of education and access of resources, both of which is required to help them work their way out of poverty and for upward economic and social mobility. The problem is more acute for women in countries like India, despite the fact that women's labour makes a critical contribution to the economy. This is due to the low social status and lack of access to key resources. Evidence shows that groups of women are better customers than men, the better managers of resources. If loans are routed through women benefits of loans are spread wider among the household.

The term micro finance is of recent origin and is commonly used in addressing issues related to poverty alleviation, financial support to micro entrepreneurs, gender development etc. There is, however, no statutory definition of micro finance. The taskforce on supportitative policy and Regulatory Framework for Microfinance has defined microfinance as "Provision of thrift, credit and other financial services and products of very small amounts to the poor in rural, semi-urban or urban areas for enabling them to raise their income levels and improve living standards". The term "Micro" literally means "small". But the task force has not defined any amount. However as per Micro Credit Special Cell of the Reserve Bank Of India the borrowal amounts upto the limit of Rs.25000/- could be considered as micro credit products and this amount could be gradually increased up to Rs.40000/- over a period of time which roughly equals to $500 – a standard for South Asia as per international perceptions

The term micro finance, sometimes is used interchangeably with the term micro credit. However while micro credit refers to purveyance of loans in small quantities, the term

microfinance has a broader meaning covering in its ambit other financial services like saving, insurance etc. as well.

The mantra "Microfinance" is banking through groups. The essential features of the approach are to provide financial services through the groups of individuals, formed either in joint liability or co-obligation mode. The other dimensions of the microfinance approach are:

- Savings/Thrift precedes credit
- Credit is linked with savings/thrift
- Absence of subsidies
-Group plays an important role in credit appraisal, monitoring and recovery

Basically groups can be of two types:

Self Help Groups (SHGs) : The group in this case does financial intermediation on behalf of the formal institution. This is the predominant model followed in India.

Grameen Groups: In this model, financial assistance is provided to the individual in a group by the formal institution on the strength of group's assurance. In other words, individual loans are provided on the strength of joint liability/co obligation. This microfinance model was initiated by Bangladesh Grameen Bank and is being used by some of the Micro Finance Institutions (MFIs) in our country.

Brief Literature Review

Concern with women's access to credit and assumptions about contributions to women's empowerment are not new. From the early 1970s women's movements in a number of countries became increasingly interested in the degree to which women were able to access poverty-focused credit programmes and credit cooperatives. In India organizations like Self- Employed Women's Association (SEWA) among others with origins and affiliations in the Indian labour and women's movements identified credit as a major constraint in their work with informal sector women workers.

The problem of women's access to credit was given particular emphasis at the first International Women's Conference in Mexico in 1975 as part of the emerging awareness of the importance of women's productive role both for national economies, and for women's rights. This led to the setting up of the Women's World Banking network and production of manuals for women's credit provision. Other women's organizations world-wide set up credit and savings components both as a way of increasing women's incomes and bringing women together to address wider gender issues. From the mid-1980s there was a mushrooming of donor, government and NGO-sponsored credit programmes in the wake of the 1985 Nairobi women's conference (Mayoux, 1995a).

The 1980s and 1990s also saw development and rapid expansion of large minimalist poverty-targeted micro-finance institutions and networks like Grameen Bank, ACCION and Finca among others. In these organizations and others evidence of significantly higher female repayment rates led to increasing emphasis on targeting women as an efficiency strategy to increase credit recovery. A number of donors also saw female-targeted financially-sustainable micro-finance as a means of marrying internal demands for increased efficiency because of declining budgets with demands of the increasingly vocal gender lobbies.

The trend was further reinforced by the Micro Credit Summit Campaign starting in 1997 which had 'reaching and empowering women' as it's second key goal after poverty reduction (RESULTS 1997). Micro-finance for women has recently been seen as a key strategy in meeting not only Millennium Goal on gender equality, but also poverty Reduction, Health, HIV/AIDS and other goals.

The feminist empowerment paradigm did not originate as a Northern imposition, but is firmly rooted in the development of some of the earliest micro-finance programmes in the South, including SEWA in India. It currently underlies the gender policies of many NGOs and the perspectives of some of the consultants and researchers looking at gender impact of micro-finance programmes (e.g. Chen 1996, Johnson, 1997).

Women's empowerment is seen as an integral and inseparable part of a wider process of social transformation. The main target group is poor women and women capable of providing alternative female role models for change. Increasing attention has also been paid to men's role in challenging gender inequality.

Micro-finance is promoted as an entry point in the context of a wider strategy for women's economic and socio-political empowerment which focuses on gender awareness and feminist organization. As developed by Chen in her proposals for a sub sector approach to micro credit, based partly on SEWA's strategy and promoted by UNIFEM, microfinance must be: Part of a sectoral strategy for change which identifies opportunities, constraints and bottlenecks within industries which if addressed can raise returns and prospects for large numbers of women. Possible strategies include linking women to existing services and infrastructure, developing new technology such as labour-saving food processing, building information networks, shifting to new markets, policy level changes to overcome legislative barriers and unionization.

Based on participatory principles to build up incremental knowledge of industries and enable women to develop their strategies for change (Chen, 1996). Economic empowerment is however defined in more than individualist terms to include issues such as property rights, changes intra-household relations and transformation of the macro-economic context. Many organisations go further than interventions at the industry level to include gender-specific strategies for social and political empowerment. Some programmes have developed very effective means for integrating gender awareness into programmes and for organizing women and men to challenge and change gender discrimination. Some also have legal rights support for women and engage in gender advocacy. These interventions to increase social and political empowerment are seen as essential prerequisites for economic empowerment.

Socio economic development through Microfinance Institution

The poverty alleviation paradigm underlies many NGO integrated poverty-targeted community development programmes. Poverty alleviation here is defined in broader terms than market incomes to encompass increasing capacities and choices and decreasing the vulnerability of poor people.

The main focus of programmes as a whole is on developing sustainable livelihoods, community development and social service provision like literacy, healthcare and infrastructure development. There is not only a concern with reaching the poor, but also the poorest.

Policy debates have focused particularly on the importance of small savings and loan provision for consumption as well as production, group formation and the possible justification for some level of subsidy for programmes working with particular client groups or in particular contexts. Some programmes have developed effective methodologies for poverty targeting and/or operating in remote areas. Such strategies have recently become a focus of interest from some donors and also the Microcredit Summit Campaign. Although term 'empowerment' is frequently used in general terms, often synonymous with a multi-dimensional definition of poverty alleviation, the term ' women's empowerment ' is often considered best avoided as being too controversial and political. The assumption is that increasing women's access to micro-finance will enable women to make a greater contribution to household income and this, together with other interventions to increase household well-being, will translate into improved well-being for women and enable women to bring about wider changes in gender inequality.

The financial self-sustainability paradigm (also referred to as the financial systems approach or sustainability approach) underlies the models of microfinance promoted since the mid-1990s by most donor agencies and the Best Practice guidelines promoted in publications by USAID, World Bank, UNDP and CGAP.

The ultimate aim is large programmes which are profitable and fully self-supporting in competition with other private sector banking institutions and able to raise funds from international financial markets rather than relying on funds from development agencies. The main target group, despite claims to reach the poorest, is the 'bankable poor': small entrepreneurs and farmers. This emphasis on financial sustainability is seen as necessary to create institutions which reach significant numbers of poor people in the context of declining aid budgets and opposition to welfare and redistribution in macro-economic policy. Alongside this focus on female targeting, the term 'empowerment' is frequently used in promotional literature. Definitions of empowerment are in individualist terms with the ultimate aim being the expansion of individual choice or capacity for Self-reliance. It is assumed that increasing women's access to micro-finance services will in itself lead to individual economic empowerment through enabling women's decisions about savings and credit use, enabling women to set up micro-enterprise, increasing incomes under their control. It is then assumed that this increased economic empowerment will lead to increased well-being of women and also to social and political empowerment.

These paradigms do not correspond systematically to any one organisational model of micro-finance. Micro-finance providers with the same organisational form eg village bank, Grameen model or cooperative model may have very different gender policies and/or emphases and strategies for poverty alleviation. The three paradigms represent different 'discourses' each with its own relatively consistent internal logic in relating aims to policies, based on different underlying understandings of development. They are not only different, but often seen as 'incompatible discourses' in uneasy tension and with continually contested degrees of dominance. In many programmes and donor agencies there is considerable disagreement, lack of communication and/or personal animosity and promoted by different stakeholders within organisations between staff involved in micro-finance (generally firm followers of financial self-sustainability), staff concerned with human development (generally with more sympathy for the poverty alleviation paradigm and emphasising participation and integrated development) gender lobbies (generally incorporating at least some elements of the feminist empowerment paradigm). What is of concern in current debates is the way in which the use of apparently similar terminology of empowerment,

participation and sustainability conceals radical differences in policy priorities. Although women's empowerment may be a stated aim in the rhetoric of official gender policy and program promotion, in practice it becomes subsumed in and marginalised by concerns of financial sustainability and/or poverty alleviation.

Micro Finance is emerging as a powerful instrument for poverty alleviation in the anew economy. In India, micro finance scene is dominated by Self Help Groups (SHGs) – Bank Linkage Programme, aimed at providing a cost effective mechanism for providing financial services to the "unreached poor". Based on the philosophy of peer pressure and group savings as collateral substitute , the SHG programme has been successful in not only in meeting peculiar needs of the rural poor, but also in strengthening collective self-help capacities of the poor at the local level, leading to their empowerment.

Micro Finance for the poor and women has received extensive recognition as a strategy for poverty reduction and for economic empowerment. Increasingly in the last five years , there is questioning of whether micro credit is most effective approach to economic empowerment of poorest and, among them, women in particular. Development practitioners in India and developing countries often argue that the exaggerated focus on micro finance as a solution for the poor has led to neglect by the state and public institutions in addressing employment and livelihood needs of the poor.

Credit for empowerment is about organizing people, particularly around credit and building capacities to manage money. The focus is on getting the poor to mobilize their own funds, building their capacities and empowering them to leverage external credit. Perception women is that learning to manage money and rotate funds builds women's capacities and confidence to intervene in local governance beyond the limited goals of ensuring access to credit. Further, it combines the goals of financial sustainability with that of creating community owned institutions.

Before 1990's, credit schemes for rural women were almost negligible. The concept of women's credit was born on the insistence by women oriented studies that highlighted the discrimination and struggle of women in having the access of credit. However, there is a perceptible gap in financing genuine credit needs of the poor especially women in the rural sector.

There are certain misconception about the poor people that they need loan at subsidized rate of interest on soft terms, they lack education, skill, capacity to save, credit worthiness and therefore are not bankable. Nevertheless, the experience of several SHGs reveal that rural poor are actually efficient managers of credit and finance. Availability of timely and adequate credit is essential for them to undertake any economic activity rather than credit subsidy. The Government measures have attempted to help the poor by implementing different poverty alleviation programmes but with little success. Since most of them are target based involving lengthy procedures for loan disbursement, high transaction costs, and lack of supervision and monitoring. Since the credit requirements of the rural poor cannot be adopted on project lending app roach as it is in the case of organized sector, there emerged the need for an informal credit supply through SHGs. The rural poor with the assistance from NGOs have demonstrated their potential for self help to secure economic and financial strength. Various case studies show that there is a positive correlation between credit availability and women's empowerment.

Women Entrepreneurship through Microfinance Institution

The undermentioned case studies have been included from two of the highly rated microfinance institution of our country namely SKS Microfinance and Bandhan Financial Services Ltd.

Some Case Studies

Ammena Bi and her husband staying in a small village use to earn Rs 120 per day as a construction labour which was not enough to run a family of five members including her three school going children.when Ammena joined as a client in microfinance institution and availed a loan of Rs 10,000.With this money Ameena and her Husband with his previous expertise started the business of selling pillows and mattresses.They sourced the raw material from a wholesale dealer and they have also hired an assistant to help them. After repayment of the first loan successfully Ammena was also able to generate some surplus money with which they expanded their business. she availed a second loan of Rs 12000 after which she could manage to buy a small shop. Twenty-five weeks later Ameena took a Mid-Term loan of Rs 2,000 and with her father's help set up a small enterprise selling flowers. She sources flowers from her own little garden and the wholesale flower bazaar She has also hired two assistants who help her make garlands and she pays them Rs.40 per day. Soon she created a sales channel using local trucks who would help transport her flowers to nearby local markets. Now she is in her third loan cycle and the daily income of the couple is Rs 600.

Thus from the above case we could see how microfinance institution has been successful in creating small business and also new employment opportunities among people who are generally neglected in our social structure.

Lakshmi's husband had a small business. Her husband was not doing too well at his business and no one was ready to lend them money. Lakshmi was worried about how they would bring up their two daughters and son. Then she availed a loan of Rs.1000 from a Microfinance institution. With that amount she started to buy and sell readymade garments in the nearby villages. With a heavy load on her head, she went door to door and worked hard to pool up money. Confident about the sales and her hard work, she took a second income generating loan of Rs 12,000. Later, she took a loan of Rs 14,000 to purchase the readymade cloth for more sales. Her daily earnings were growing steadily. Today, she clocks a monthly income of Rs 30,000.

Lakshmi is an inspiration to many today because as a successful mother she not only supported her family but also provided her two children better education. Microfinance institution has not only gifted women like her a decent standard of living but also helped their future generation to move out from the curse of poverty.

Manju Devi lives in a village with her husband Lakhraj and three children who are studying in a nearby school. Lakhraj designed sarees with 'aara thaari' and 'zardosi work' to earn his living. He received orders from his neighbors and the local shops to design the sarees and earned income based on the workmanship. He wanted to set up a shop and employ few others in the village, but financial constraints restricted his growth. Manju often shared his work, in order to get more orders from the customers.

One day, when Lakhraj was at work, he lost his index finger of the right hand unfortunately in an embroidery machine which was bought with their savings. For a long

period, he could not resume his work and it affected their business. He encouraged Manju to run the business and made her interact with the customer.

She then joned a microfinance institutionjoined and availed an Income Generating Loan worth Rs 10,000 and bought plain sarees from a local wholesale dealer. She also invested some amount to purchase embroidery threads and needles. Later, with a Mid Term Loan of Rs 6,000 she bought two sewing machines and employed two workers for the same. With the second Income Generating Loan of Rs 14,000 she purchased two more machines and bought another set of sarees from the wholesale dealer. Apart from the workers in the workshop, she employed skilled labor to undertake handmade 'zardosi work'. All the workers are paid according to their workmanship on an hourly basis. Her sarees range from Rs 100 to Rs 50,000. Meanwhile, Lakhraj developed contacts in Jaipur and visited the shops every week to take orders personally. This has helped Manju to monitor the workshop and the workmanship of her labor.Now her income is more than Rs 150 per day.

This is how microfinance institution has not only provided services for the survival of the poor but also helped to provide employment to others in a village.

Saida Bi is a member of a microfinance Institution and took an income generating loan of Rs 8000 initially to purchase tyres for an old jeep owned by her husband. Her husband repaired the jeep and used it for passenger service in the nearby villages. Later, the jeep was sold and they purchased an auto rickshaw which was given out for rent. Saida Bi took a second income generation loan of Rs 10,000 and used it for down payment to purchase another auto rickshaw for passenger service. Saida Bi then figured there was nobody offering tent house services in her village. She took another loan and set up a tent house business from home. . She now wants to increase the number of services in the tent house as she is now able to save upto Rs 12,000 (per month and is extremely happy about the growth.

She now can support her family and also can provide good education to her three children.This indeed is a great example showing how microfinance institutions help poverty alleviation and also upgrade the status of its clients who otherwise are almost exempted from the normal structure of our society.

However impact on incomes is widely variable. Studies which consider income levels find that for the majority of borrowers income increases are small, and in some cases negative. All the evidence suggests that most women invest in existing activities which are low profit and insecure and/or in their husband's activities. In many programmes and contexts it is only in a minority of cases that women can develop lucrative activities of their own through credit and savings alone.

There have undoubtedly been women whose status in the household has improved, particularly where they have become successful entrepreneurs. Even where income impacts have been small, or men have used the loan, the fact that micro-finance programmes have thought women worth targeting and women bring an asset into the household may give some women more negotiating power.

Savings provide women with a means of building up an asset base. Women themselves also often value the opportunity to be seen to be making a greater contribution to household well-being giving them greater confidence and sense of self-worth.

However women's contribution to increased income going into households does not ensure that women necessarily benefit or that there is any challenge to gender inequalities

within the household. Women's expenditure patterns may replicate rather than counter gender inequalities and continue to disadvantage girls. Without substitute care for small children, the elderly and disabled, and provision of services to reduce domestic work many programmes reported adverse effects of women's outside work on children and the elderly. Daughters in particular may be withdrawn from school to assist their mothers.

There have been positive changes in household and community perceptions of women's productive role, as well as changes at the individual level. In societies like Sudan and Bangladesh where women's role has been very circumscribed and women previously had little opportunity to meet women outside their immediate family there have sometimes been significant changes. It is likely that changes at the individual, household and community levels are interlinked and that individual women who gain respect in their households then act as role models for others leading to a wider process of change in community perceptions and male willingness to accept change (Lakshman, 1996).

Micro-finance has also been strategically used by some NGOs as an entry point for wider social and political mobilisation of women around gender issues. For example SEWA in India, CODEC in Bangladesh and CIPCRE in Cameroon, indicate the potential of micro-finance to form a basis for organization against other issues like domestic violence, male alcohol abuse and dowry.

Some Case Studies

A conclusion that emerges from this account is that micro finance can contribute to solving the problems of inadequate housing and urban services as an integral part of poverty alleviation programmes. The challenge lies in finding the level of flexibility in the credit instrument that could make it match the multiple credit requirements of the low income borrower without imposing unbearably high cost of monitoring its end use upon the lenders. A promising solution is to provide multipurpose lone or composite credit for income generation, housing improvement and consumption support. Consumption loan is found to be especially important during the gestation period between commencing a new economic activity and deriving positive income. Careful research on demand for financing and savings behavior of the potential borrowers and their participation in determing the mix of multi-purpose loans are essential in making the concept work.

The organizations involved in micro credit initiatives should take account of the fact that:

Credit is important for development but cannot by itself enable very poor women to overcome their poverty.

- Making credit available to women does not automatically mean they have control over its use and over any income they might generate from micro enterprises.
- In situations of chronic poverty it is more important to provide saving services than to offer credit.
- A useful indicator of the tangible impact of micro credit schemes is the number of additional proposals and demands presented by local villagers to public authorities.

Nevertheless ensuring that the micro-finance sector continues to move forward in relation to gender equality and women's empowerment will require a long-term strategic process of the same order as the one in relation to poverty if gender is not to continue to 'evaporate' in a combination of complacency and resistance within donor agencies and the micro-finance sector. This will involve:

- Ongoing exchange of experience and innovation between practitioners
- Constant awareness and questioning of 'bad practice'
- Lobbying donors for sufficient funding for empowerment strategies
- Bringing together the different players in the sector to develop coherent policies and for gender advocacy.

India is the country where a collaborative model between banks, NGOs, MFIs and Women's organizations is furthest advanced. It therefore serves as a good starting point to look at what we know so far about 'Best Practice' in relation to micro-finance for women's empowerment and how different institutions can work together.

It is clear that gender strategies in micro finance need to look beyond just increasing women's access to savings and credit and organizing self help groups to look strategically at how programmes can actively promote gender equality and women's empowerment. Moreover the focus should be on developing a diversified micro finance sector where different type of organizations, NGO, MFIs and formal sector banks all should have gender policies adapted to the needs of their particular target groups/institutional roles and capacities and collaborate and work together to make a significant contribution to gender equality and pro-poor development.

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PERSPECTIVE:

Decentralized Planning and Rural Development: An IT Perspective for India

Krishnendu Sarkar

1. Premise:

A greater part of rural India has since long perennially suffered due to poor governance of developmental policies and programmes. For example, more than 40 per cent of close to Rs 400 billion budget sanctioned for one majorly funded Indian Government Scheme under MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) for poverty alleviation, during 2011-12 remained unspent until December, prompting the Finance Ministry to propose a reduced budget for it in the next fiscal. The programme has also failed in its target of providing a guaranteed employment of 100 days in a year to one person per family. And, the scenario on fund utilization is poor for other Central Government funded schemes as well. The Centre blames the States for non-utilization of the funds, while the States put the blame on delay in release of the allocations. The Rural Development Ministry sources say the funds cannot be released unless the State government furnishes audited use of the previous allocation. The programme like MNREGA is already mired into corruption like fake muster rolls, rampant irregularities, payments to ghost workers, job cards issued at a price and bribes taken by the panchayat heads through whom the funds are distributed. Even after its implementation for so many years, the programme has failed to cover the intended beneficiaries. It was the viewpoint of Planning Commission (Mihir Shah, ex-chairman committee, Planning Commission) that the MNREGA programme should be linked to asset creation and agriculture and not just digging of pits. The Ministry of Statistics and Programme Implementation want meaningful convergence of MPLAD (Member of Parliament Local Area Development) scheme funds with MNREGA funds and allow the MPs to release funds for works taken up under such convergent actions programme. Further, it wants the MPs to recommend funds from their MPLAD only for creating more durable assets and that too for works from the shelf of projects approved by the district's panchayats. The MPLAD funds so allotted will be used only for the material component since the wages are to be paid from the MNREGA sanctions. In view of enormous size of the MNREGA programme and its increasing scope through convergence with other similar schemes like MPLAD, it will be necessary to use IT to ensure effective implementation and proper management of the Programmes and also bring transparency and credibility. Since all such Central Government funded programmes are Rights based, a convergence of IT using GIS, GPS, Remote Sensing, Smart Cards, Mobile, Other hand-held digital devices, Biometrics, etc can be used as an integrated IT tool to ensure the rights and entitlements and thereby assure the minimum quality of life till the last mile. Further, an effective IT perspective can mitigate the anomalies in the process of 'Sector-wise' decentralized planning for funds vis-à-vis 'Scheme-wise' release of funds.

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2. Objective Functions

In view of the premise as above an IT perspective with the following objective functions are recommended.

2.1 Decentralized Priority-based Planning for funds and Priority-based Release of Funds

- Appropriate a nation-wide IT methodology for collection, collation, storage and processing of data on natural resources in a given region and in totality.
- Standardize the data-formats for natural resources and socio-economic data in an integrated manner to establish linkage among various hierarchical units
- Access to (real-time) information (from anywhere and anytime) for planning, evaluation and control.

2.2 Asset Management and Asset Maximization

- Capture existing assets with their location, purpose, status and other information.
- Maintain an up-to-date inventory of created assets.
- Perform periodic asset assessments and summarize the results quantitatively.
- Assessment and management of Assets and its maintenance
- Mapping of block-wise geo-resources.
- Integration of attribute information from various sources.

2.3 Job-days Maximization

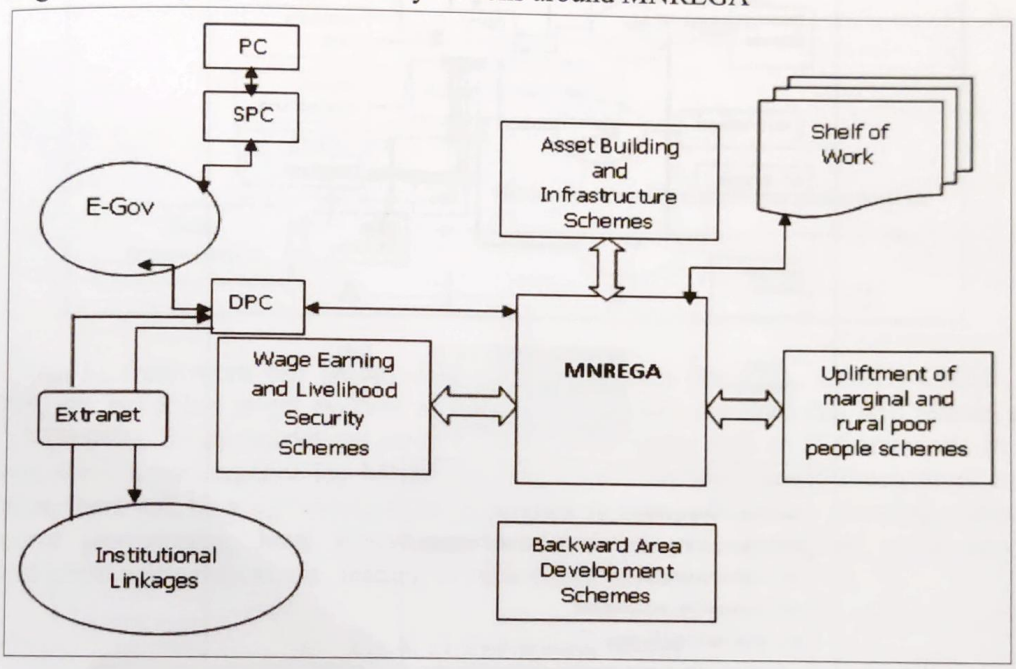
- Increase the shelf of work and the demand to work at Gram Sabha (GS) levels.
- Ensure ready access to the scope and targets of programs at Gram Panchayat (GP) levels– Target, time lines, funds etc.
- Information on the features for asset definition, asset deployment, costing and its target coverage at the GP and Block levels.
- 'What-if-Analysis' at District and Block levels for assessing a plan at asset level, region level and program level.
- Facilitate the convergence of community actions -- MNREGA with other livelihood security, health, education and welfare programmes.
- Facilitate decision-support on 'what-can-be' new work-areas under MNREGA sectors at GP levels
- Facilitate decision support at GP levels on optimal sector-wise, inter-sector wise employability mapping of job card holder.
- Ensure a near zero-waiting period for wage payments
- Monitor the social security net for job card holders

2.3 Job-days Maximization

- Facilitate GP level convergence of similar goal-driven programmes around MNREGA as in Fig.1 towards united funding of development under the basic financing of plan framework as in Fig.2
- Automate the work flow processes at District Level and Sub-District levels under MNREGA
- Formulate apt methodology for GP-wide monitoring of fund for asset creation, maintenance, surveys etc.

- Reduce human interface and control of errors.
- Facilitate real time and more authentic data collection.
- Increase the reliability of information and user convenience to access for reporting and control.

Fig 1: Convergence of Community Actions around MNREGA



As per the MNREGA Act (Section 10.1.7 of MNREGA Operational Guidelines, MoRD 2008) the State Government shall have to monitor the scheme(s) in all aspects of implementation and shall have to set up a computerised MIS for this purpose. Here it is important that a select few indicators be monitored at frequent intervals at a very high level and the dashboard of indicators can include the following.

I. Number of households provided work as a proportion of the total number of job cards.

ii. Number of person days of employment provided to each household demanding work.

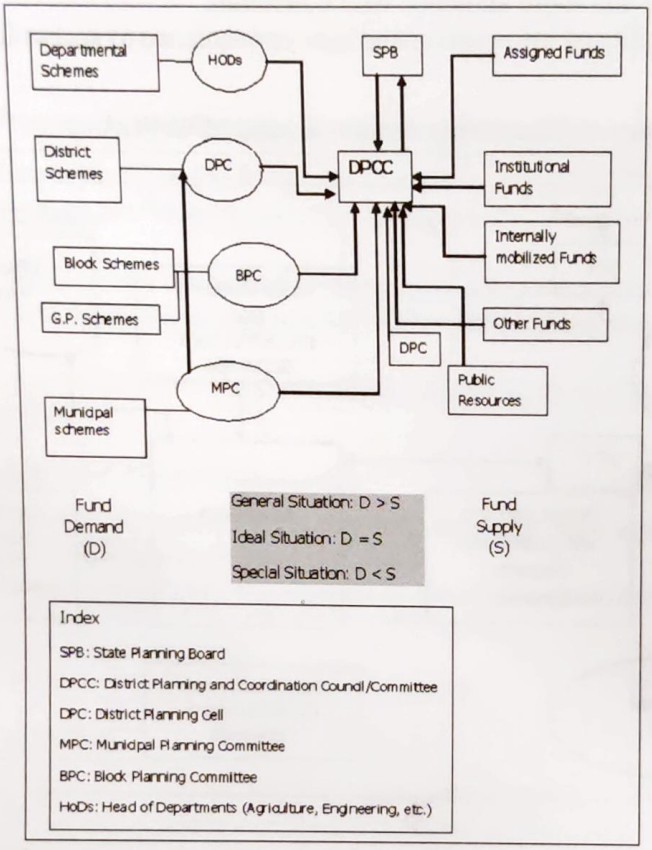
iii. Employment (persondays) provided as a proportion of demand for work

iv. Number of persons and unemployment allowance amount provided.

v. Proportion of all money released under MNREGA accounted under:

- Money held in bank accounts at various levels;
- Advances to implementing or payment agencies;
- Vouchers of actual expenses and number of works completed as a proportion of works for which work orders have been issued.

Fig 2: Financing the Plan in a PRI system



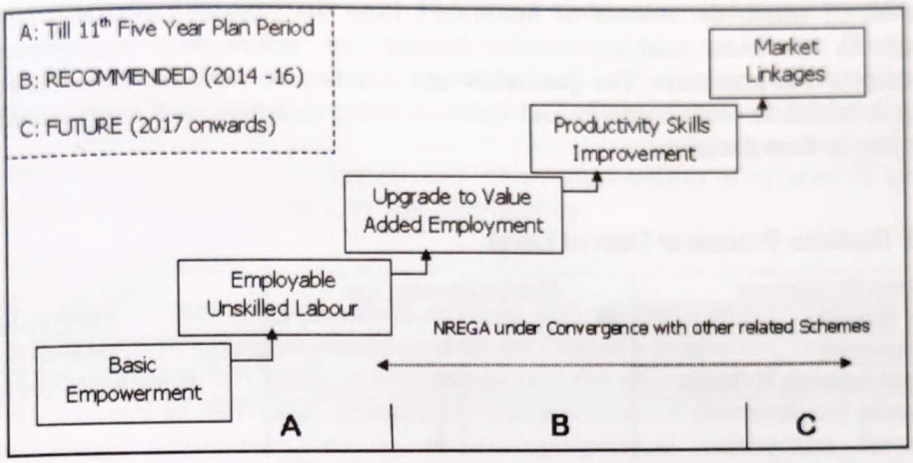
The effectiveness of the proposed objective functions (2.1, 2.2, 2.3 and 2.4) will largely depend on a robust supportive IT environment which is two-way, user-friendly, accessible and affordable to local people of backward areas.

Given the fact that Indian Government's flagship 'e-Governance' is still far from its intended outcomes after more than a decade of its nationwide implementation; it can be hoped that an effective IT perspective led development programs (MNREGA and others) can help fulfill its objective functions that are laid out above.

3. Information Networking of Objective Functions

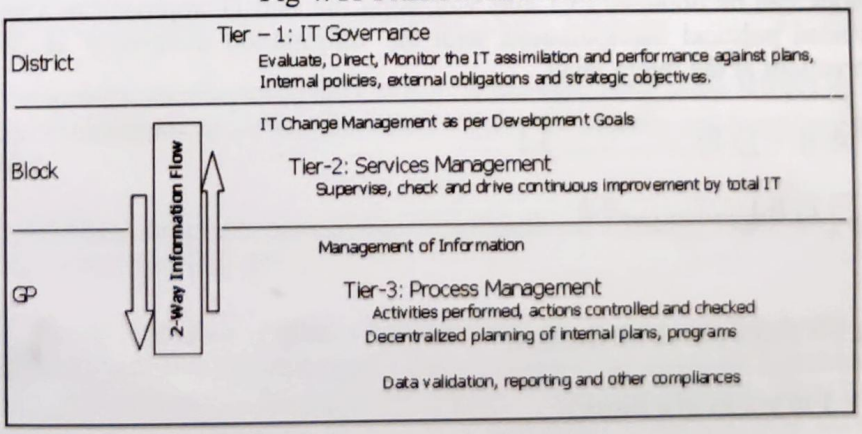
In order to meet the development priorities efficiently and effectively, there should be a robust design for data communication between major action data entities of all related development and governance areas in all the three tiers of local governance. At the State level, the Ministry of Panchayati Raj & Rural Development Department is the nodal Agency for Implementation, Supervision & Monitoring of programmes like MNREGA in the rural areas and at the District-level it is the Zilla Parishad. Under the three-tier system of democratic decentralization, Zilla Parishad is the apex body at the district level followed by Panchayat Samitis at Block level as second-tier and Gram Panchayats at the third-tier. The following figures (Fig.3, Fig.4 and Fig.5) are provided to illustrate the information networking perspective around one majorly funded scheme like MNREGA.

Fig 3: Integrated Planning Scope under MNREGA



An IT framework can be based on standard models like ITIL, CObIT, CMMI, ISO 17799, etc. but it has to get evolved as a national (internal) standard that will remain same for all Districts. Every district can act as a 'Data Center' under such an IT framework. In such a framework a convergence led MNREGA (Fig 1) will be feasible and much more useful. Further, there will be a significant value generation in terms of -- micro planning, optimized resource provisioning, local governance, economic security, quality of social services, environment management, etc. leading to sustainable development.

Fig 4: IT Framework Model

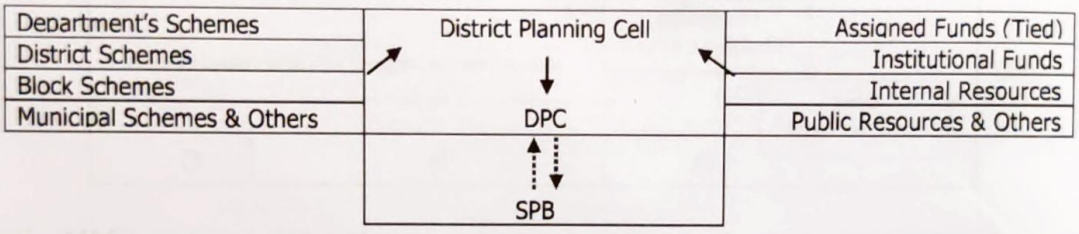


3.1 Data Centre Approach

A Data Centre approach here will signify a robust IT mechanism (hardware and software) for the storing and processing of all kinds of data, its value added retrieval in form of information and/or intelligence to planners and its dissemination to individual and institutional users within or outside the PRI system. This approach is meant to facilitate the integration of program wise discrete informational resources under one district-level 'cloud' and facilitate convergent community actions under a single-window information system. A district level Data Centre shall be the most suitable IT approach for inclusive planning and development at micro levels. Besides it will enable optimized requisitioning and release of

resources under programmes like MNREGA for effective development of backward areas. As a result of which the release of funds (rF) from the District Level will be under a multi-criteria decision making model backed by information transparency and people-empowered processes. The qualitative and quantitative attributes for rF determinants as in Fig 6, which is often complex and far from being objective, will combine effectively to make just in time decisions.

Fig 6: rF Decision Process at District Level



Data Centre approach will also help planners to ascertaining the need of Fund (nF) fund that can help in an informed rF that may tend to critical minimum Fund (mF) against nF. mF shall signify the minimum fund required for conducting the planned activity or program under a given sector. Any rF that is less than mF will tantamount to either gross under-performance or back-flow of fund. mF will also act as a filter for optimum assessment based revision of the nF. In a nut shell the approach suggested is aimed to – a) estimate the nF and mF; b) improve the provisioning and utilization of rF. For example the mF for GP and Block can be obtained (3.1 and 3.2) using the said IT approach in a way that can mitigate vested political manipulations with the 'information inclusivity' in decentralized planning practices at the micro level.

$$pE\ ij = \sum i\ pE\ ij = \sum i\ Ej \quad \ldots\ldots\ldots\ldots\ 3.1$$

$$mF = \sum j\ (\ \sum i\ Ej\ Ij\ ) \quad \ldots\ldots\ldots\ldots\ 3.2$$

Where:

I Sectors, i = 1 to x (as in MNREGA)

j G.Ps, j = 1 to y (as in a Block)

E Expected income generating person-days per annum in each G.P

p EPotential of each sector for Income generating person-days per annum in each G.P

I Investment required per person-day per sector in each G.P

In case of disaster situation like flood and other calamities the rF is instantly provided lump sum as a matter of political compulsion there is no instant mechanism to ascertain the nF and mF. It has been observed that in those situations a major portion of granted money goes back due to the lack of judiciously utilization plans (nF/ mF) in terms of a) management

of crisis and b) mitigating such disaster situations in future. With a Data Centre approach the nF can be effectively planned for disaster mitigation and control and thereby saving loss of life and capital. Subsequent five year plans should include the cost of such IT approaches that will offer more benefits in terms of appropriate rF provisioning and its utilization for development and disaster management. rF can also include 'direct-to-beneficiary' payouts as well. The benefits also will accrue in form of district level convergence of development schemes and also integration of databases and information entities of existent IT systems as one cloud and its pro-user accessibility and affordability.

4. Concluding Remarks

IT perspective both with human as well as with machine engagements in planning process can be suitable for micro planning under the funded schemes of Central Government where the planned need for funds, the allocation and the utilization of funds can be at its optimal best. The IT enabled processes and its sub-processes of decentralized planning and allocation should effectively serve as a new geo-political architecture for reaching development to the last mile with the realization of the objective functions as proposed in this article. A national IT perspective based on the proposed objective functions can serve as a primary reference for the Indian States to formulate their own IT frameworks to effectively plan for funds and its release for the better realization of its peculiar and particular rural development goals. With an IT perspective, India must reform its policy and its governance for sustainable development right from the base of pyramid and upwards.

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BOOK REVIEW:

The Ten Principles Behind Great Customer Experiences: by Matthew (Matt) Watkinson, FT Publishing, 2013

Dr. Supriya Biswas

The author is a management consultant and this book is an overall winner of CMI (The Chartered Management of Institute, UK) management book of the year 2014. The book is organized in fifteen chapters and it presents ten simple principles that one can use to make improvements to any customer experience. The book has emphasized on the practical things that one can do today to make real difference to the lives of customers. Prime target audience is obviously the strategic marketers interested in development of customer relationship with a deeper and broader insight.

Author has started with the definition of customer experience: it is the qualitative aspect of any interaction that an individual has with a business, its products or services, at any point of time. Interestingly, the author has also explained bit by bit the components of his definition almost in the similar line of 'Moments of Truth' of service marketing. The key is to look more broadly than the very narrow window of direct interaction, and understand where a particular journey begins and ends for a customer. This can then be used to develop ideas for how a brand can improve the experience across a much larger range of touchpoints.

According to the author the ten principles of great customer experience are as follows: i) it should reflect the customer's identity ii) it should satisfy company's higher objectives iii) leave nothing to chance iv) set and then meet expectations v) it should be effortless vi) it should be stress free vii) it should indulge the senses viii) it should be socially engaging ix) puts customers in control x) it considers emotion. The book is provided with worksheet in some relevant chapters guiding the users to implement these concepts in live situations. And, of course, the starting point for creating a great experience should always be to understand what people need (or, rather, what people want; their 'jobs to be done'). He feels the companies are too much outer-directed and gets bogged down with competition analysis, market research. But the most admired companies are inner-directed where the strategic team is concerned with proper value creation for the customer. His advice to brand builders triggers three questions (a) What functional value ('jobs to be done') does the customer want from me? (b) What budget or willingness to pay does the customer have? (c) What does the customer want the brand to signify about themselves?

The author has artistically crafted his views very much in a story telling manner, at times referring live cases to corroborate his views. The book highlights why the customer experience matters so much in business today and why many businesses are struggling to make improvements. In fact, businesses and governments are obsessed with setting metrics. These are almost always numerical representations of some objective reality. And that's where the problem lies. Finally here is a book which tackles this problem and has simple, practical principles for solving it. It is part of a whole movement in social science and marketing which leads one to believe - and indeed to hope - that the next revolution will be

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not technological but psychological. The book also helps one to structure the customer's experience in such a way that each interaction can be worked on.

Great customer experiences are set and then met expectations: to elaborate this point, Matt Watkinson uses one quote: "Happiness equals reality minus expectations". An important part of experience management is the setting of expectations. The main focus of this chapter of the book is on setting and meeting of expectations (not exceeding). Watkinson argues that businesses should be cautious about exceeding expectations, and in fact regularly exceeding expectations just recalibrates expectations and sets up future problems. The best strategy is to consistently meet expectations and (very) occasionally surprise customers.

While discussing the chapter, 'Great customer experiences leave nothing to chance', Watkinson argues that every customer interaction should be carefully considered, planned and designed. He quotes Dieter Rams, "Good design is thorough down to the last detail. Nothing must be arbitrary or left to chance. Care and accuracy in the design process show respect towards the consumer."

The most interesting chapter of the book – 'Great Customer experiences are stress free'. This chapter highlights the prevention rather than cure of stress. The author has rightly pointed out that products and services are stressful to use simply because they never designed to be stress free. This is very common in the service industry because such gaps lead to conflict and conflicts develop undue stress in the relationship. To err is human and it is never possible to eliminate error completely but design customer experiences that reduce the likelihood of errors and where prevention is not possible, recover gracefully when it happens. This is almost synonymous with the principle of service recovery in the area of service management. In the process the author has suggested various ways of classifying the errors, for example, knowledge based mistakes, slips, lapses, prioritizing the errors in terms of frequency, cost, and ease of detection. The author has also set a comprehensive guideline for error management and stress reduction.

Great customer experiences depend on engaging a customer's senses and Matt Watkinson acknowledges this, quoting Steve Jobs, "We made the buttons on the screen look so good you'll want to lick them". The more senses that can be engaged (with consistent messages) the greater the impact of the experience.

In a later chapter, Matt Watkinson links many emotions experienced by customers back to his ten design principles. For example, feeling in control can lead to pride, but a loss of control can lead to anger. Sensory pleasure can lead to delight, but if expectations of an experience are not met then we may experience anger, disappointment or regret.

Although the author suggests great experiences are effortless and stress free, is it really the case in the industries? Is it not the fact that when a delighted customer asks for more, the service provider has to exert a great deal of extra efforts? Generally companies interested to delight the investors in terms of returns, tend to restrict the comfort zone of their people by limiting resources. Business owners even go to the extent of compromising the basic hygiene of work environment to improve margins. Besides, there is a general tendency of 'high profitability driven' entrepreneurs to show highest per person productivity and very often to achieve this goal, resource crunch is a common phenomenon in business and it is the root cause of conflict and stress.

In conclusion, 'The Ten Principles Behind Great Customer Experiences' is an important piece of scholarly work and will act like a holy grail of customer management for particularly the service marketers. This book would not only help the business strategist, but the B School faculty members and students, marketing practitioners as well as the avid readers interested to have a meaningful insight about the emerging trend of customer experience management.

About The Journal And Call For Papers

Mission :

NSHM Business School is publishing NSHM Journal of Management Research and Applications (NJMRA). The objective of NJMRA is to present current research and ideas in the field of management in a lucid format accessible to both the academia and industry. The journal is also expected to act as a platform for industry professionals to share their best practices.

NJMRA invites original research-based papers, articles, book reviews and management cases on topics of current concern in the areas of management, development economics and related social sciences. It looks for conceptually sound and methodologically robust articles that harness and extend knowledge in all domains of management through empirical work or by building on existing concepts, and draws out the implication of the research for practitioners. The section on practices on the other hand is expected to extend the knowledge of the academic researchers in this discipline. Consequently, we expect the articles to have the potential to advance both management theory and practice through the bilateral exchange and synthesis of ideas and information.

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The journal will be published twice a year in the months of June and December.

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All tables, charts, graphs, diagrams should be in black and white and not in color. The images should be of high resolution and in black and white only. Number and complexity of such exhibits should be as low as possible. All charts and graphs should be drawn legibly and figures should be indicated in suitable and appropriate scale. All charts, graphs, images, etc. should also be numbered and referred to in the body of the text.

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United States Agency for International Development (USAID), (2008): Private Health Insurance in India: Promise & Reality.

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If the market exists it would help the victims to get assured good quality treatment at low cost through either risk-pooling (Arrow, 1963) or income-pooling (Nyman, 2003).

One unique thing of private health insurance (PHI) in Canada is the coverage of prescription drugs outside of hospitals that is not provided by public coverage (Glied, 2001; Colombo and Tapay, 2004).

This regulation needed well defined and informative materials regarding the future prospect of the insurance products at the time of sale, claims procedure, proper functioning of policyholders services and so on (USAID, 2008).

11. In case of more than two authors only the first author surname must appear followed by et al as shown below :

This indicates the presence of substitution relation in richer countries between private and public provisioning of healthcare related services; if quality of public service is not up to the mark relatively more affluent people may opt out (Sekhri et al. 2005).

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