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EDITORIAL

I have much pleasure in presenting the second issue of Business Spectrum, the e-journal of IAA Midnapore Branch, West Bengal. The second issue includes six articles written by different scholars covering a wide spectrum of areas. Pradipta Banerjee in his article entitled “Analysis of Financial Viability of Energy-efficient CDM Projects in India: A Case Study” discusses the case of Visakhapatnam (India) OSRAM CFL Distribution CDM Project with the help of cost-benefit analysis.

Sudipta Ghosh in his article deals with issues and challenges of entrepreneurship development in the context of rural development in India. Sanjit Kumar Das and Debashis Kumar Basu have made an interpretative study of how subordinate staffs construe key ‘complexity events’ around a PPP project running at the Purba Medinipur District of West Bengal. While the article by Bijay Krishna Bhattacharyya and others makes a critical review of the working of mutual funds in India in the era of economic reforms, that of Soheli Ghosh Banerjee considers the performance appraisal of select mutual fund schemes of public sector and private sector mutual funds during the period of recent global economic meltdown. Nibedita Roy discusses the concept of securitization and explains how it works as a risk management tool in Indian industry.

In this context I convey my heartiest thanks to the paper writers and the reviewers of the papers. I also thank all other persons associated with the publication of this issue, particularly the executive editor and the desk editor.

Jaydeb Sarkhel

Editor in Chief

Performance Analysis of Select Mutual Fund Schemes in the Recent Global Economic Meltdown

Soheli Ghose Banerjee*

Abstract

Our generation is facing turbulent times with respect to global economy. Recently we witnessed a global economic meltdown which affected the worldwide financial markets in varying degrees. The so called Recovery Phase of the economic recession is being slowed down due to the deepening debt crisis in the USA, political corruption which has gripped our nation and inflation to name a few. In this context I have studied the effect and role of Mutual Funds in the fluctuating financial markets. A mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified professionally managed basket of securities at a relatively low cost making them very popular in recent times. In this study I have analysed 1 public sector and 2 private sector mutual fund schemes, which are ICICI Prudential Discovery (2), HDFC Equity (27), UTI Opportunities (47), between January 2010 to September 2011 covering the turbulent period of this economic crisis. In these trying times all sectors are getting affected adversely, the performance analysis of Mutual Funds is very much pertinent in that context.

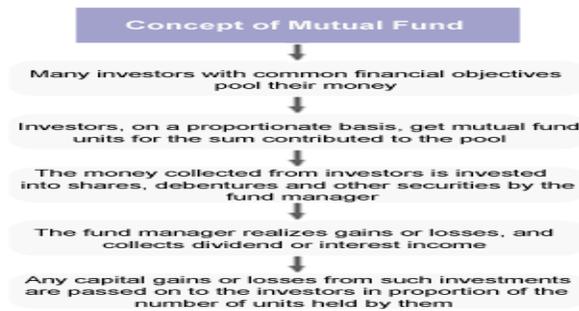
The study is based on secondary data collected from a sample of top 50 Equity Diversified funds based on rankings provided by Valueresearchonline.com (A popular mutual fund related website) as on 1st January 2010. These funds were analysed for performance and fluctuations, changes in their sector holdings to establish a relation between sector holdings and fund performance during business cycle fluctuations and Correlation between various factors with return generated. Statistical tools like charts & graphs were used for presenting the performance analysis.

Key words: Equity Diversified Open Ended Mutual Fund Schemes.

Introduction

According to the Association of Indian Mutual Fund Industry, “A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciation realized are shared by the unit holders in the proportion to the number of units owned by them. Thus a mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified professionally managed basket of securities at a relatively low cost.” Thus a mutual fund is just the connecting bridge or a financial intermediary that allows a group of investors to pool their money together with a predetermined investment objective. The essence of a Mutual Fund is the diversified portfolio of investment which diversifies the risk by spreading out the investor’s money across available or different types of investments.

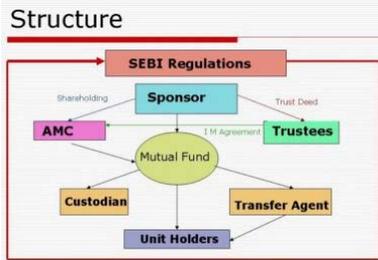
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Source: www.personalfn.com

Any change in the value of the investments in capital market instruments is reflected in the Net Asset Value of the scheme. Investors can transact in mutual funds either through their mutual fund distributor, directly by approaching the AMC or through an online mutual fund trading platform.

Structure of Mutual Fund Industry in India



Source: personalfn.com

Rationale of Mutual Fund

Mutual Funds invest in a well-diversified portfolio of securities which enables the investors to hold diversified investment portfolios (whether the amount of investment is big or small) and thereby reducing the risk considerably as loss in any particular investment is reduced by gains in others. Mutual funds are very cost efficient and also easy to invest in. Through mutual fund investors can purchase stocks or bonds with much lower trading costs. Mutual funds provide investors with various schemes with different investment objectives. All material facts are disclosed to investors as required by the regulator, SEBI. Investors can switch their holdings from a debt scheme to an equity scheme and vice-versa. Option of systematic investment and withdrawal is also offered to the investors in most open-end schemes. The minimum investment in a Mutual Fund is relatively smaller than that of shares. Mutual Fund industry is a part of a well-regulated investment environment where the interests of the investors are protected by the regulator. All funds are registered with SEBI and complete transparency is forced. Middle class people, salaried employees, etc. generally choose mutual fund investments as they don't have the time or expertise to invest in company stocks directly or track the performance of various stocks on a regular basis. The Mutual Fund managers are experts who deal in these aspects and thus make investments easier and more profitable for this class of investors making mutual fund investment very popular in recent times.

History of Mutual Fund Industry in India

The formation of Unit Trust of India marked the evolution of the Indian mutual fund industry in the year 1963 with the primary objective of attracting the small investors to the capital market. The history of mutual fund industry in India can be divided into following phases:

Phase 1: Establishment and Growth of Unit Trust of India - 1964-87: Unit Trust of India enjoyed complete monopoly when it was established in the year 1963 under a statute passed by the Parliament and it continued to operate under the regulatory control of the RBI until the two were delinked in 1978 and the entire control was transferred in the hands of Industrial

Development Bank of India (IDBI). UTI launched its first scheme in 1964, named as Unit Scheme 1964 (US-64). It launched ULIP in 1971. By the end of 1987, UTI's assets under management grew ten times to Rs 6700 crores.

Phase II. Entry of Public Sector Funds - 1987-1993: Many public sector players entered the market in the year 1987. In November 1987, SBI Mutual Fund from the State Bank of India became the first non-UTI mutual fund in India. It was later followed by Canbank Mutual Fund (1987), LIC Mutual Fund (1989), Indian Bank Mutual Fund (1989), PNB Mutual Fund (1989), Bank of India Mutual Fund (1990), GIC Mutual Fund (1990) and Bank of Baroda Mutual Fund (1992). By 1993, the asset under management (AUM) of the industry increased seven times to Rs. 47,004 crores. However, UTI remained to be the leader with about 80% market share.

Phase III. Emergence of Private Sector Funds - 1993-96: With the entry of private sector funds in 1993, a new era started in the Indian mutual fund industry, giving the Indian investors a wider choice of fund families. By 1994-95, about 11 private sector funds had launched their schemes. In 1993 the first Mutual Fund Regulations came into being, under which all mutual funds, except UTI were to be registered and governed. The erstwhile Kothari Pioneer (now merged with Franklin Templeton) was the first private sector mutual fund registered in July 1993. The 1993 SEBI (Mutual Fund) Regulations were substituted by a more comprehensive and revised Mutual Fund Regulations in 1996. Many foreign mutual funds set up funds in India and the industry witnessed several mergers and acquisitions.

Phase IV. Growth and SEBI Regulation - 1996-2004: The mutual fund industry witnessed growth and stricter regulation from the SEBI after 1996. SEBI (Mutual Funds) Regulations, 1996 introduced by SEBI set uniform standards for all mutual funds in India. The Union Budget in 1999 exempted all dividend incomes in the hands of investors from income tax. Various Investor Awareness Programmes were launched by SEBI and AMFI, with an objective to educate investors about the mutual fund industry. In February 2003, the UTI Act was repealed and UTI was stripped of its special legal status bringing all mutual fund players on the same level. UTI was reorganized into two parts: 1. The Specified Undertaking, 2. The UTI Mutual Fund. By the end of September, 2004, there were 29 funds, with AUM of Rs.153108 crores under 421 schemes. But, UTI Mutual Fund was still the largest player in the industry.

Phase V. Growth and Consolidation - 2004 Onwards: The industry has also witnessed several mergers and acquisitions recently, examples of which are acquisition of schemes of Alliance Mutual Fund by Birla Sun Life, Sun F&C Mutual Fund and PNB Mutual Fund by Principal Mutual Fund. More international mutual fund players have entered India like Fidelity, Franklin Templeton Mutual Fund etc. This is a continuing phase of growth of the industry through consolidation and entry of new international and private sector players.



Source: amfindia.com

Literature Survey

Research work on Mutual Funds began as early as 1960s in the U.S.A. and European region. **Sharpe (1966)** was the first person to introduce a measure for the performance of Mutual Funds, popularly known as the Sharpe Ratio:

$$R(x) = (R_x - R_f) / \sigma_x$$

x is some investment; R_x is the average annual rate of return of x; R_f is the best available rate of return of a "risk-free" security ; σ_x is the standard deviation of rates of returns from x.

Treynor (1965) developed another indicator, popularly known as the Treynor Ratio, that measures the performance of a portfolio by dividing the returns earned from the portfolio in excess of returns earned on a risk less investment by the beta of the portfolio (i.e., market risk). The ratio is,

$$(r_p - r_f) / \beta_p$$

r_p = Average return of the portfolio; r_f = Average return of the risk-free proxy; β_p = Beta of the portfolio.

Using Sharpe ratio and Treynor ratio as tools of evaluating performance, various scholars have worked on the performance of Indian Mutual Funds.

In their study **Guha Deb and Banerjee (2009)** used Value at Risk approach (VaR) as a single risk measure summarizing all sources of downward risk. They attempted to highlight the importance of VaR as a measure of 'downside risk' for Indian Equity Mutual Funds. **Roy and Deb (2003)** used the Treynor-Mazuy model and Henriksson-Merton model to measure the Conditional Performance of Indian Mutual Funds. **Ferson and Schadt (1996)** advocated a technique called conditional performance evaluation measuring the performance with both unconditional and conditional form of - CAPM, Treynor-Mazuy model and Henriksson-Merton model. Several recent studies have empirically tested the persistence in fund performance [**Yung and Kenneth (2004)**, **Goetzmann and Morey (2003)**, **Volkman and Wohar (1994)**], but didn't thoroughly investigate other systematic factors affecting future fund performance.

Objective of the Study

In the present paper an attempt has been made to analyse the performance of 1 public sector mutual fund scheme, *UTI Opportunities (47)*, and 2 private sector mutual fund schemes which are *ICICI Prudential Discovery (2)* and *HDFC Equity (27)*, in the period from January 2010 to September 2011 covering the turbulent period of the economic crisis. It seems that Mutual Fund Industry is a shock absorber to market fluctuations and if it fails to do so, it cannot be differentiated from other types of investments. In this study period all sectors are getting affected adversely, and so the performance analysis of Mutual Funds is very pertinent. The study is based on the secondary data collected for a sample of top 50 Equity Diversified funds based on rankings provided by Valueresearchonline (A popular and authentic mutual fund research organization) as on 1st January 2010. The second stage sample schemes were taken from these and were analysed for performance and fluctuations, changes in their sector holdings to establish a relation between sector holdings and fund performance during business cycle fluctuations and correlate various factors with return generated.

Performance Analysis and Interpretation

1. **ICICI PRU DISCOVERY:** It is revealed from Figure 1 that in the beginning of the study period January 2010 it garnered very high return (9.17) which had dropped a little in March 2010 (6.89) and June 2010 (5.56) but again picked up very well in September 2010 (12.17). However the downfall began in December 2010 onwards when the return was 0.9 and continued plummeting further in March 2011 (-6.64), June 2011 (1.14) and September 2011 (-12). This negative turn can be explained as:

a) The economy as a whole had taken a downward turn from the beginning of 2011 and we later witnessed difficult times both politically and socially which adversely affected the Indian Financial Markets including the Mutual Fund Industry.

b) The major sector holdings were Financial, Energy, Healthcare, Communication, Chemicals, Metals and Services. The stockholdings in Energy and Healthcare Sector did not change much. The energy (especially crude oil) crisis deepened from early 2011 with oil prices skyrocketing. This may have affected the returns generated towards the later quarters of 2011. The stockholdings in the Financial sector fell from 19.68 in January 2010 to 10.4 in September 2011. However with the Financial Sector performing well overall this reduction in percentage stockholdings may have affected the performance of the Fund. The holdings in the Chemicals sector had also reduced considerably similar to the Communication sector where the holdings were completely given up in June and September 2011. This was triggered by the severe crisis the Telecommunication Industry was going through. Though there has been a sharp rise in the Technology sector (3.25 to 10.53), it did not help the returns much (Figure 2).

c) The major changes in the company holdings were Bharti Airtel (6.11 to 0) and ONGC (4.15 to 0), which is obviously reflected in the returns generated (Figure 3).

2. **HDFC EQUITY:** Figure 4 reveals that in January 2010 it garnered very high return (9.06) which had dropped badly in March 2010 (2.28) but again picked up very well in September 2010 (17.12). However the downfall began in December 2010 onwards when the return was 0.62 and continued plummeting further in March 2011 (-5.1), June 2011 (-0.73) and September 2011 (-12.73). This negative turn can be explained by the following:

a) The first explanation is same as in case of ICICI PRU DISCOVERY.

b) The major sector holdings were Financial, Energy, Healthcare, FMCG, and Services. The stockholdings in Energy Sector increased from 11.26 to 17.1. The energy (especially crude oil) crisis deepened from early 2011 with oil prices skyrocketing. This may have affected the returns generated towards the later quarters of 2011. The stockholdings in the Healthcare and Financial sector fell from 9.56 and 26.33 in January 2010 to 3.35 and 22.48 in September 2011 respectively. However with the Sectors performing well overall this reduction in percentage stockholdings may have further affected the performance of the Fund. The holdings in the Communications sector had also increased considerably from 0 to 4.1 This, along with the severe crisis the Telecommunication Industry was going through, may have further reduced the reruns. Though there has been a steady rise in the Technology sector, FMCG sector has seen a sharp decrease and as these sectors are performing well overall, the increase in percentage stock holdings in one and decrease in another may have counteracted leading further to the adverse effect of the other sector holdings. Thus it did not help the returns much (Figure 5).

c) The major changes in the company holdings were Bharti Airtel (0 to 4.1), Oil India (0 to 2.13), Coal India (0 to 2.4) and ONGC (5.95 to 0), which showed in the returns generated (Figure 6).

3. **UTI OPPORTUNITIES:**

In January 2010 it garnered very high return (5.62, though not as high as the private funds studied here) which had dropped badly in March 2010 (-0.75) but again picked up very well in September 2010 (15.32). However the downfall began in December 2010 onwards when the return was 1.84 and continued plummeting further in March 2011 (-5.05), June 2011 (0.29) and September 2011 (-4.6). However the negative return in September 2011 is not as low as compared to the private funds studied here (Figure 7). This negative turn can be explained as:

a) Here also the first explanation of ICICI PRU DISCOVERY holds good.

b) The major sector holdings were Financial, Energy, Construction, FMCG, Metals and Technology. The stockholdings in Energy Sector was stable at around 13% which is quite high. The energy (especially crude oil) crisis deepened from early 2011 with oil prices skyrocketing. This may have affected the returns generated towards the later quarters of 2011. The

stockholdings in the Metals and Technology sector fell from 11.3 and 9.48 in January 2010 to 1.35 and 6.54 in September 2011 respectively. However with the Sectors performing well overall this reduction in percentage stockholdings may have further affected the performance of the Fund. The holdings in the Communications sector had also increased considerably from 0 to 2.56. This along with the severe crisis the Telecommunication Industry is going through may have further reduced the returns. Though there has been a sharp rise in the FMCG, Construction and Cons Durable sector and in spite of these sectors performing well overall, the increase in percentage stock holdings have not been high enough to counter the adverse effect of the other sector holdings. Thus it did not help the returns much (Figure 8).

c) The major changes in the company holdings happened in Bharti Airtel (0 to 1.88), Cairn India (0 to 3.87), ITC (2.5 to 6.96) and Titan Industries (0 to 4.54), which is obviously reflected in the returns generated (Figure 9).

Conclusion

On the basis of observation of the performance of the select mutual fund schemes of both the Private and Public Sectors, the following important inferences may be drawn (Figure 10):

a) The economy performed well in the 1st quarter of 2010 then dipping a little and picking up momentum in September quarter of 2010. This was clearly reflected in the returns of all the chosen funds. The recovering economy again faced a downward turn from December 2010 due to international debt crisis, political, social and economic problems in India, which is still continuing. This has also clearly affected the Financial markets and thereby the Mutual Fund Industry as a whole. Even the better performing funds fluctuate also along with the fluctuating economy. Thus there is a correlation between fund performance and financial market fluctuations brought on by the Global Economic Crisis.

b) The returns are also linked with the sector performance. All the funds had substantially invested in the Energy and Communications sectors which met with a crisis and thereby reducing returns. It was also seen that few funds had reduced their percentage holdings in the better performing sectors like Financial, Technology, Services and FMCG and , therefore, not been able to benefit from the sector returns. Thus there is a correlation between Sector Holdings, performance of those sectors in the economy and returns generated by the Mutual Fund Schemes.

c) The returns generated by the Public Sector Funds are not as high compared to the Private Sector Funds and the negative returns are also more controlled in the Public Sector Funds as compared to the Private Sector Funds. This is partly due to the difference in sector holdings and also due to the conservative nature of investment followed by the public sector funds.

GRAPHS AND TABLES:

FIGURE 1: Return Generated By ICICI Pru Discovery:

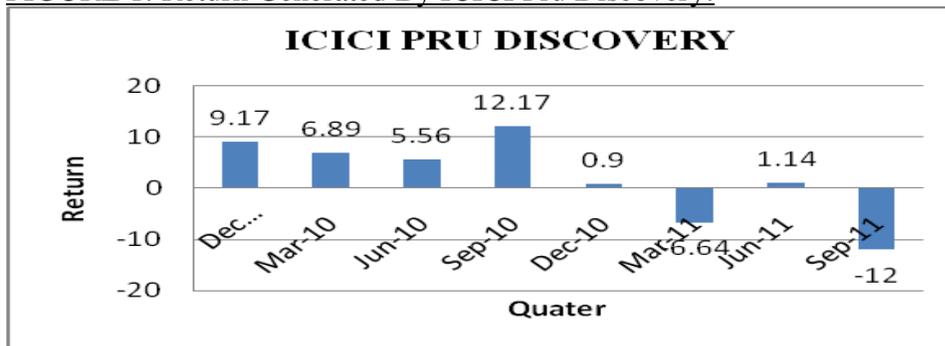


FIGURE 2: Sector Holdings Of ICICI Pru Discovery:

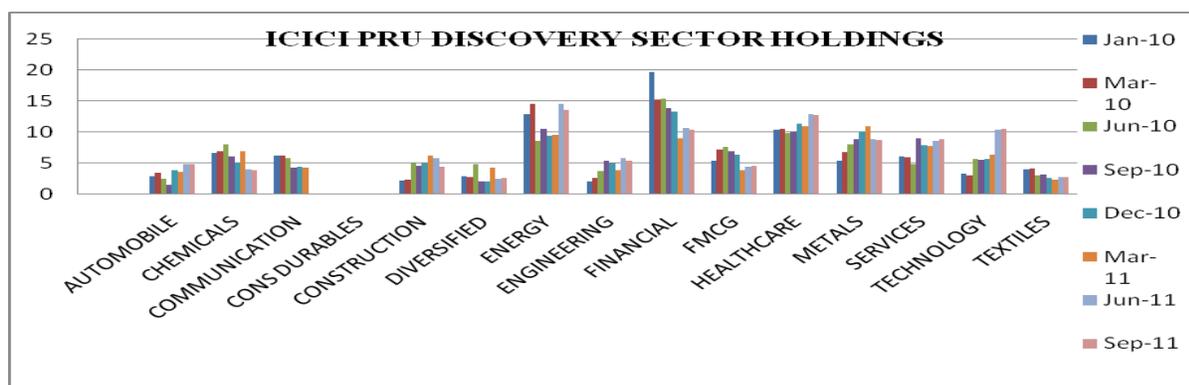


TABLE I: Sector Holdings Of ICICI Pru Discovery:

SECTOR	ICICI PRU DISCOVERY (2)							
	Jan-10	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11
AUTOMOBILE	2.81	3.4	2.42	1.4	3.74	3.48	4.74	4.78
CHEMICALS	6.53	6.85	7.92	6.04	5.08	6.82	3.89	3.71
COMMUNICATION	6.11	6.13	5.73	4.19	4.27	4.24	0	0
CONS DURABLES	0	0	0	0	0	0	0	0
CONSTRUCTION	2.06	2.17	4.82	4.47	4.92	6.11	5.74	4.29
DIVERSIFIED	2.76	2.72	4.77	1.97	1.89	4.15	2.32	2.46
ENERGY	12.81	14.53	8.51	10.44	9.4	9.56	14.59	13.48
ENGINEERING	1.92	2.47	3.62	5.3	4.87	3.84	5.73	5.27
FINANCIAL	19.68	15.23	15.32	13.83	13.22	8.89	10.65	10.4
FMCG	5.35	7.09	7.55	6.84	6.34	3.79	4.33	4.43
HEALTHCARE	10.37	10.41	9.71	10.07	11.36	10.83	12.82	12.66
METALS	5.34	6.76	7.94	8.75	10.02	10.83	8.74	8.7
SERVICES	6.05	5.89	4.72	8.88	7.79	7.65	8.51	8.86
TECHNOLOGY	3.25	3	5.61	5.45	5.6	6.28	10.33	10.53
TEXTILES	3.94	4.03	2.92	3.11	2.56	2.19	2.66	2.69

GRAPH 3: Company Holdings Of Icici Pru Discovery:

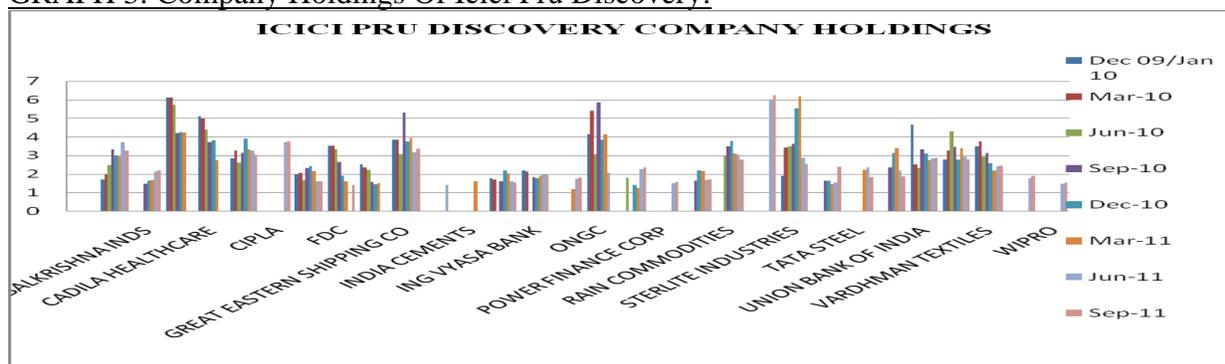
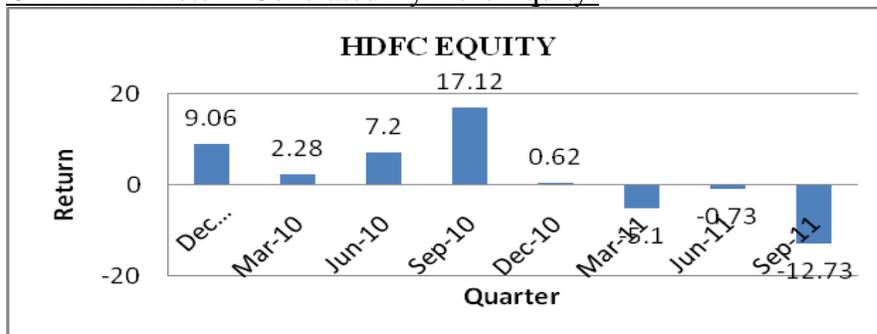


TABLE II: Company Holdings Of Icici Pru Discovery:

COMPANY	ICICI PRU DISCOVERY (2)							
	/Jan 10	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11
AMARA RAJA BATTERIES	1.69	1.96	2.49	3.31	2.97	2.93	3.71	3.25
BALKRISHNA INDS	0	0	0	1.48	1.62	1.66	2.12	2.17

BHARTI AIRTEL	6.11	6.13	5.73	4.19	4.27	4.24	0	0
CADILA HEALTHCARE	5.11	4.97	4.38	3.71	3.82	2.73	0	0
CESC	2.84	3.25	2.6	3.11	3.91	3.31	3.27	3.03
CIPLA	0	0	0	0	0	0	3.7	3.74
eCLERX SERVICES	1.97	2.04	1.65	2.31	2.41	2.15	1.58	1.6
FDC	3.51	3.51	3.32	2.63	1.88	1.59	0	1.4
FEDERAL BANK	2.51	2.33	2.2	1.55	1.42	1.49	0	0
GREAT EASTERN SHIPPING	3.84	3.85	3.07	5.31	3.76	3.93	3.16	3.35
HCL TECHNOLOGIES	0	0	0	0	0	0	1.39	0
INDIA CEMENTS	0	0	0	0	0	1.61	0	0
INFOTECH ENTERPRISES	1.77	1.69	0	1.58	2.18	2.03	1.61	1.54
ING VYASA BANK	2.17	2.11	0	1.83	1.75	1.9	1.94	2
MINDTREE	0	0	0	0	0	1.18	1.71	1.79
ONGC	4.15	5.39	3.05	5.87	3.83	4.14	2.05	0
ORACLE FIN SER SOFTWARE	0	0	1.8	0	1.39	1.23	2.24	2.36
POWER FINANCE CORP	0	0	0	0	0	0	1.51	1.57
PUNJAB NATIONAL BANK	0	0	0	1.63	2.18	2.16	1.65	1.7
RAIN COMMODITIES	0	0	3.01	3.5	3.78	3.08	3.03	2.78
RELIANCE INDUSTRIES	0	0	0	0	0	0	6.01	6.25
STERLITE INDUSTRIES	1.9	3.43	3.5	3.63	5.55	6.18	2.85	2.54
TATA MOTORS	0	0	0	1.63	1.62	1.43	1.52	2.39
TATA STEEL	0	0	0	0	0	2.21	2.35	1.83
TORRENT PHARMACEUTICALS	0	0	0	2.35	3.14	3.38	2.18	1.85
UNION BANK OF INDIA	4.67	2.51	2.3	3.33	3.1	2.75	2.83	2.88
UNITED PHOSPHORUS	2.76	3.25	4.29	3.46	2.78	3.38	2.92	2.78
VARDHMAN TEXTILES	3.47	3.76	2.92	3.11	2.56	2.19	2.4	2.45
VOLTAS	0	0	0	0	0	0	1.77	1.88
WIPRO	0	0	0	0	0	0	1.48	1.52

GRAPH 4: Return Generated By Hdfe Equity:



GRAPH 5: Sector Holdings Of Hdfe Equity:

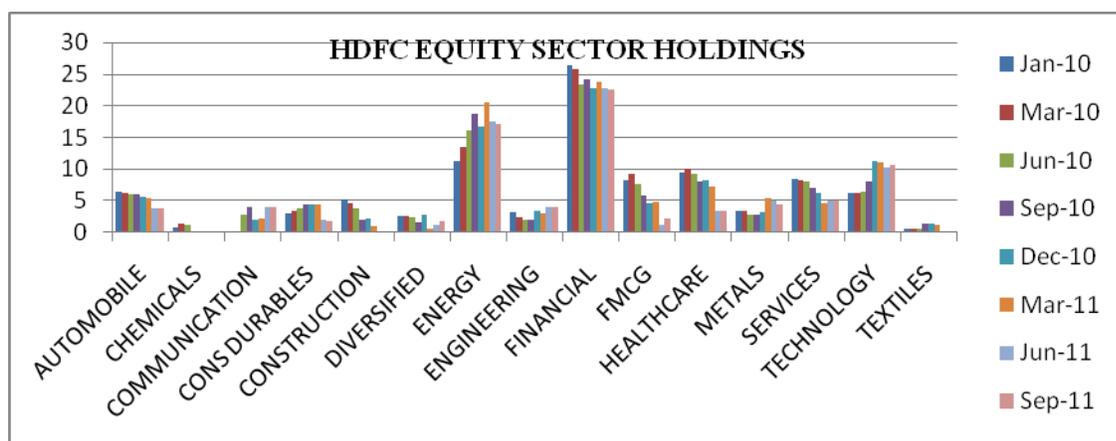


TABLE III: Sector Holdings Of Hdfc Equity:

SECTOR	HDFC EQUITY (27)							
	Jan-10	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11
AUTOMOBILE	6.49	6.32	6	6.14	5.59	5.4	3.84	3.83
CHEMICALS	0.86	1.44	1.12	0	0	0.06	0	0
COMMUNICATION	0	0	2.79	4.11	1.99	2.3	4.12	4.1
CONS DURABLES	3	3.38	3.77	4.4	4.45	4.57	2	1.74
CONSTRUCTION	5.27	4.7	3.82	1.95	2.15	1.14	0	0
DIVERSIFIED	2.56	2.71	2.5	1.54	2.9	0.75	1.2	1.76
ENERGY	11.26	13.47	16.06	18.82	16.69	20.64	17.6	17.1
ENGINEERING	3.32	2.32	1.97	2.03	3.43	3.01	4.08	3.98
FINANCIAL	26.33	25.69	23.31	24.08	22.7	23.83	22.81	22.48
FMCG	8.28	9.24	7.65	5.75	4.56	4.96	1.21	2.14
HEALTHCARE	9.56	10.12	9.32	8.07	8.3	7.26	3.38	3.35
METALS	3.43	3.47	2.81	2.74	3.21	5.48	4.95	4.37
SERVICES	8.4	8.27	8.08	7.14	6.18	4.61	5.07	5.06
TECHNOLOGY	6.3	6.2	6.52	8.15	11.31	11.09	10.31	10.73
TEXTILES	0.7	0.64	0.56	1.5	1.48	1.21	0	0

GRAPH 6: Company Holdings Of Hdfc Equity:

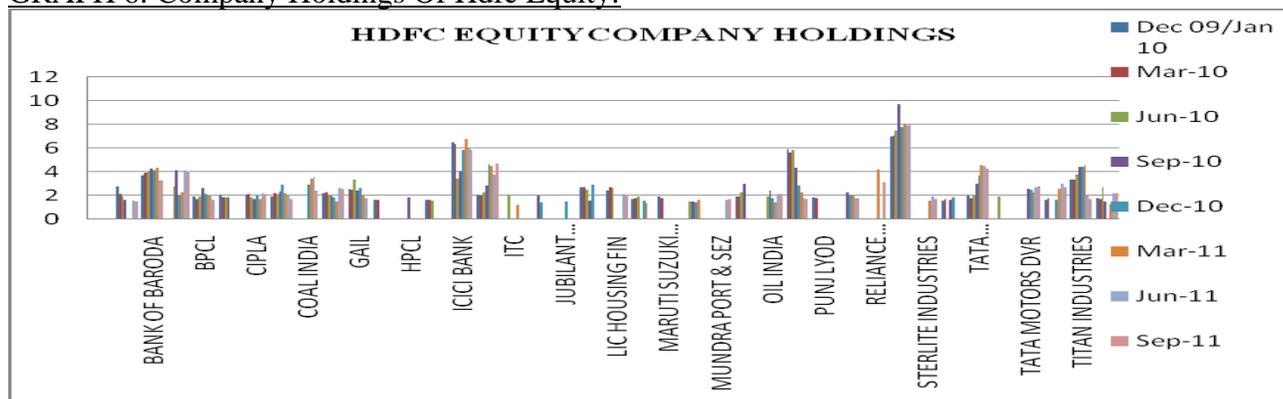
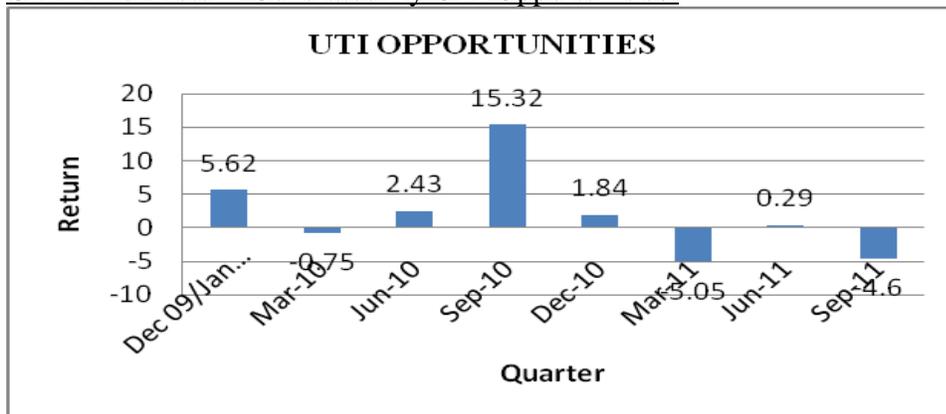


TABLE IV: Company Holdings Of Hdfc Equity:

COMPANY	HDFC EQUITY (27)							
	Jan 10	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11

AXIS BANK	2.8	2.16	1.94	1.65	0	0	1.6	1.47
BANK OF BARODA	3.73	3.92	4.02	4.29	4.16	4.34	3.3	3.31
BHARTI AIRTEL	0	0	2.79	4.11	1.99	2.3	4.12	4.1
BPCL	1.9	1.68	1.92	2.67	2.16	2.04	2.05	1.67
CIPLA	2.08	2.14	1.86	1.69	2.04	1.73	2.23	2.17
CMC	1.91	2.19	2.12	2.33	2.96	2.23	2.02	1.71
COAL INDIA	0	0	0	0	2.93	3.43	3.59	2.4
CROMPTON GREAVES	2.2	2.32	1.97	2.03	1.89	1.52	2.65	2.6
GAIL	2.55	2.52	3.35	2.4	2.63	2.04	1.79	0
ICICI BANK	6.5	6.34	3.43	4.09	5.89	6.76	6.05	5.88
INFOSYS TECHNOLOGIES	2.08	2.01	2.3	2.85	4.64	4.47	3.82	4.71
ITC	0	0	2.03	0	0	1.18	0	0
LIC HOUSING FIN	2.4	2.68	2.66	0	0	0	2.15	2.08
LUPIN	1.73	1.8	1.9	0	1.6	1.34	0	0
MOTHERSON SUMI SYS	0	0	1.48	1.52	1.4	1.61	0	0
MUNDRA PORT & SEZ	0	0	0	0	0	0	1.61	1.69
OIL INDIA	0	0	1.96	2.4	1.76	1.45	2.12	2.13
ONGC	5.95	5.62	5.85	4.33	2.89	2.32	1.77	1.74
PUNJAB NATIONAL BANK	0	0	0	2.3	2	2.03	1.76	1.75
RELIANCE INDUSTRIES	0	0	0	0	0	4.24	0	3.16
STATE BANK OF INDIA	7.01	7.09	7.5	9.69	7.75	7.99	7.95	7.99
STERLITE INDUSTRIES	0	0	0	0	0	1.57	1.96	1.68
TATA CONSULTANCY SERVICES	2.03	1.77	2.1	2.97	3.71	4.59	4.47	4.31
TATA MOTORS DVR	0	0	0	2.59	2.5	2.31	2.72	2.8
TATA STEEL	1.67	1.77	0	0	1.67	2.6	2.99	2.69
TITAN INDUSTRIES	3.34	3.38	3.77	4.4	4.45	4.57	2	1.74
ZEE ENTERTAINMENT ENT	1.82	1.72	2.72	1.5	0	1.27	2.24	2.21

GRAPH 7: Return Generated By UTI Opportunities:



GRAPH 8: Sector Holdings Of UTI Opportunities:



TABLE V: Sector Holdings of UTI Opportunities:

SECTOR	UTI OPPORTUNITIES (47)							
	Jan-10	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11
AUTOMOBILE	1.85	3.06	9.86	8.64	9.11	6.52	4.1	3.87
CHEMICALS	0	0	1.13	1.13	0.97	0.85	0.78	0.67
COMMUNICATION	0	0	0	0	1.05	0.82	2.68	2.56
CONS DURABLES	1.27	1.98	2.79	3.84	4.1	4.46	4.58	4.54
CONSTRUCTION	3.5	3.24	3.45	6.83	7.31	8.32	7.22	7.48
DIVERSIFIED	3.01	4.83	2.54	2.82	2.89	3.11	2.63	4.04
ENERGY	13.89	13.72	17.67	19.26	15.89	13.78	14.3	13.37
ENGINEERING	3.19	3.68	4.38	7.61	8.34	7.51	6.36	5.31
FINANCIAL	20.19	24.02	19.18	16.95	15.81	16.13	18.8	18.42
FMCG	6.7	10.62	10.11	14.06	14.15	14.47	15.4	15.13
HEALTHCARE	2.42	2.32	3.36	4.53	5.3	4.6	4.62	4.34
METALS	11.3	11.63	7.09	1.8	1.76	1.76	1.42	1.35
SERVICES	0.47	0.43	0	0	0	0.38	1.72	1.76
TECHNOLOGY	9.48	8.7	7.83	8.29	8.14	8.19	6.49	6.54
TEXTILES	0	0	0	0	0	0	0	0

GRAPH 9: Company Holdings of UTI Opportunities:

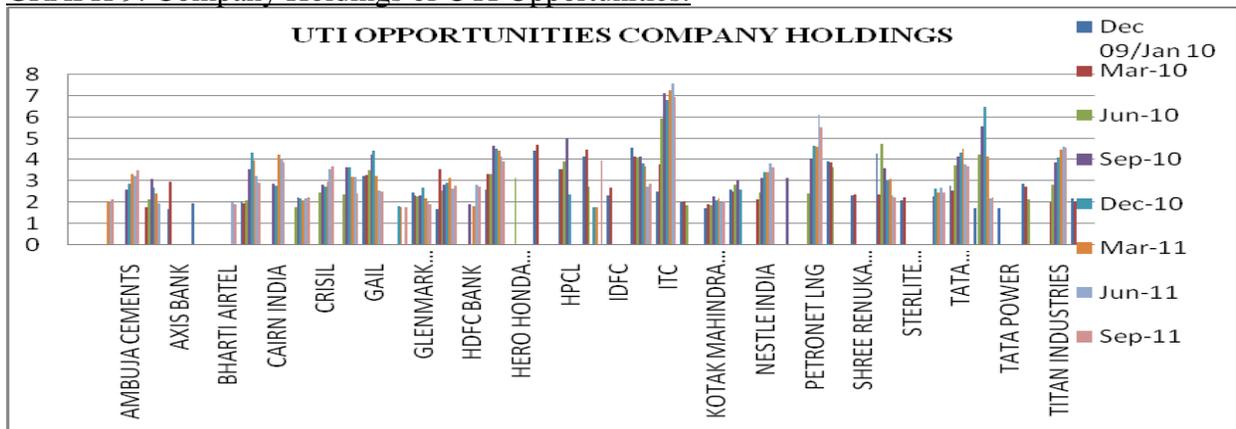
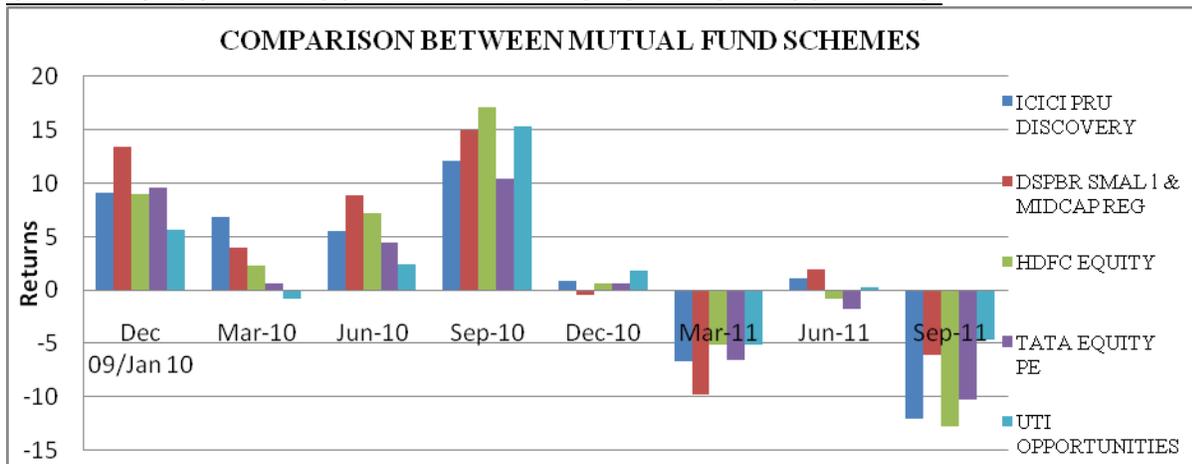


TABLE VI: Company Holdings of UTI Opportunities:

COMPANY	UTI OPPORTUNITIES (47)							
COMPANY	Jan 10	Mar-10	Jun-10	Sep-10	Dec-10	Mar-	Jun-	Sep-

						11	11	11
ACC	0	0	0	0	0	2.04	1.99	2.13
AMBUJA CEMENTS	0	0	0	2.57	2.83	3.3	3.2	3.5
ASHOK LEYLAND	0	1.77	2.11	3.07	2.65	2.41	1.94	0
BHARTI AIRTEL	0	0	0	0	0	0	1.97	1.88
BHEL	2.03	1.91	2.05	3.54	4.3	3.94	3.21	2.91
CAIRN INDIA	0	0	0	2.86	2.76	4.23	4.06	3.87
COLGATE PALMOLIVE (I)	0	0	1.77	2.21	2.15	2.06	2.18	2.2
CRISIL	0	0	2.45	2.8	2.69	2.95	3.54	3.66
EXIDE INDS	0	0	2.33	3.63	3.61	3.17	3.15	2.4
GAIL	3.2	3.25	3.48	4.24	4.43	3.23	2.52	2.46
GLAXO CONSUMER HEALTHCARE	0	0	0	0	1.8	1.77	0	1.74
GLENMARK PHARMA	2.42	2.32	2.27	2.28	2.68	2.15	1.96	1.9
GRASIM INDUSTRIES	1.64	3.54	2.54	2.82	2.89	3.11	2.63	2.75
HDFC BANK	0	0	0	1.9	0	1.78	2.81	2.72
HDFC	2.58	3.32	3.31	4.65	4.5	4.43	4.14	3.91
ICICI BANK	4.15	4.45	2.73	0	1.77	1.76	0	3.95
INFOSYS TECHNOLOGIES	4.54	4.13	4.08	4.16	3.82	3.69	2.71	2.86
ITC	2.5	3.78	5.93	7.13	6.79	7.25	7.58	6.96
KOTAK MAHINDRA BANK	1.69	1.88	1.85	2.24	2.07	2.14	1.97	2
NESTLE INDIA	0	2.11	2.42	3.11	3.41	3.39	3.83	3.62
PETRONET LNG	0	0	2.41	4.03	4.63	4.62	6.13	5.5
STATE BANK OF INDIA	4.29	2.36	4.75	3.6	3.04	3.06	2.31	2.19
SUN PHARMACEUTICAL INDS	0	0	0	2.24	2.62	2.45	2.66	2.45
TATA CONSULTANCY SERVICES	2.76	2.52	3.73	4.12	4.32	4.49	3.76	3.66
TATA MOTORS	1.69		4.22	5.57	6.46	4.12	2.16	2.22
TITAN INDUSTRIES	0	1.98	2.79	3.84	4.1	4.46	4.58	4.54

GRAPH 10: COMPARISON BETWEEN MUTUAL FUND SCHEMES:



Thus from the above study one can interpret that the Global Meltdown has adversely affected the entire Indian Financial market including the Mutual Fund Industry.

References

Journals and Magazines:

- Chordia (2003), "The Structure of Mutual Fund Charges", *Journal of Finance*, November
- Ferson and Schadt (1996), "Measuring Fund Strategy and Performance in changing Economic Conditions", *The Journal of Finance*
- Goetzmann and Morey (2003), "Manager Education and Mutual Fund Performance", *The Journal of Empirical Finance*
- Guhadab and Banerjee (2009), "Value at Risk of Mutual Funds", *The International Journal of Finance*
- Gupta (2003), "Performance Evaluation of select Mutual Fund Schemes", *The Journal of Finance and Research*
- Jayadev, M. (1996), "Mutual Fund Performance: An Analysis of Monthly Returns", *Finance India*, March
- Khorana, Servaes and Wedge (2006), "The interrelationship between Portfolio Manager Ownership and Fund performance", *The Journal of Finance*.
- Narasimhan M. S. and Vijayalakshmi, S. (2001), "Performance Analysis of Mutual Funds in India", *Finance India*
- Pollet and Wilson (2002), "How Does Size Affect Mutual Fund Behaviour?" *Journal of Finance*
- Roy, B. and Deb, S. (2003), "Conditional performance of Indian Mutual Funds", *ICFAI University Press*
- Sharpe, W .F. (1966), "Mutual Fund Performance" *Journal of Business*.
- Tripathy (1996), "Mutual Fund in India: A Financial Service in Capital Market", *Finance India*, March
- Treynor (1965), "How to Rate Management of Investment Funds", *Harvard Business Review*
- Treynor and Mazuy (1966), "Can Mutual Funds Outguess The Markets" *Harvard Business Review*
- Wohar (1995), "Determinants of persistence in relative performance of Mutual Funds." *The Journal of Financial Research*.

Books

- Baid (2007), *Mutual Funds Products and Services*, Taxman Publications, New Delhi
- Banerjee (2007), *Mutual Funds in India*, ICFAI University Press, Hyderabad
- Chandra (2002), *Performance Appraisal of Mutual Funds in India*, Excel Books, New Delhi
- Datta Chaudhuri and Seal (2008), *Mutual Fund Industry: Issues and Experiences*, ICFAI University Press, Hyderabad
- Krishnamurthi (2004), *Mutual Funds in India*, PHI, New Delhi
- Sadhak (2003), *Mutual Funds in India*, Response Books, New Delhi
- Sahadevan and Thiripalraju (2002), *Mutual Funds: Data Interpretation and Analysis*, PHI, New Delhi
- Sharpe, William F. and Alexander, Gordon J. (1994) *Investment*, PHI, New Delhi
- Sondhi (2006), *Financial Performance of Equity Mutual Funds in India*, ICFAI University Press, Hyderabad
- Tripathi (2007), *Mutual Funds in India*, Excel Books, New Delhi

Websites:

www.amfindia.com

www.mutualfundsindia.com

www.valueresearchonline.com

Mutual Funds in the era of economic reforms in India- A critical review

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Abstract

This article has tried to focus the impact of reforms on Mutual Funds (MF), the present status, as well as the responsibilities which automatically and spontaneously evolve around MF agencies. As because they invite investments from public with the intention to provide fair return, their responsibilities are undoubtedly immense. Because of vulnerability arising out of economic reforms our MFs are no more immune to world economic doldrums and the expectations of the investors are not fulfilled to what extent these were satiated by the UTI in eighties and in the beginning of nineties.

Of recent, the return on the capital invested by the public in MF is not encouraging. Moreover, the role of MF in stabilizing the capital market is not conclusive.

We have shown here that our MFs inspite of so many obstacles can also dominate the capital market and play a bigger role in the economy.

Key words: *Mutual Fund (MF), Economic reforms, Investors, Capital Market, Responsibility*

The beginning and era of Unit Trust

The concept of mutual fund (MF) perhaps developed in Egypt when its merchants travelling in different countries across the world either by caravan or by ships, sold shares to spread the risks of their ventures. However, the present day concept was developed in US. In India, the emergence of Unit Trust of India in 1964 with the object of mobilizing the domestic ordinary and potential investors' fund in fruitful manner and channelizing the funds so collected to capital market for its healthy growth as well as to provide fair return to the investors, was the first step towards MF. At present the Mutual Fund is a mechanism for pooling the resources from retail investors /groups in exchange of issuance of units and investing the said funds in securities in capital market in accordance with the objective of benefits of the investors as a whole.

The story of Unit-64 is known to majority of senior citizens across the country. There was tremendous rush for purchase of units in every July of the year in nineteen seventies and especially in eighties. The reason was simple – the returns were handsome (much higher than bank interest). But alas those sunny days are no more.

The economic reforms which started in early nineties, have given a lot to us, at the same time certain benefits have disappeared in the context of new situation. Nothing in this world can be termed as perfect. Everything has both dark and bright sides and our MF industry is of no exception.

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The period of UTI (1987-1993) and public sector Mutual Fund

So long UTI alone was there, the Indian capital market was virtually being controlled by it. But during the later part of the decade eighties the emergence of mutual funds controlled by domestic nationalized banks began to change the dominance of UTI in the capital market segment. First came SBI (1987) and Canara Bank followed by LIC, Bank of India, and GIC etc. At that time investments in mutual fund was very popular among general public.

The beginning of economic reforms ushered development in various fields and MFs are of no exception. MFs presented themselves to the public or investors in different form and initially it appeared as a boon to the investors. The status of MF industry changed a lot and major attractive schemes originated with listing provision in the stock exchanges.

The story of Master Share and Master Plus is well known to all connected with the capital market. With the success of Master share/ Master Plus, the craze for investment in Master Gain' 92 was more than a history. Almost every earning person in urban and semi-urban areas tried his best to acquire some amount of units. The scheme was subscribed heavily. At that time the economic liberalization was started and the foreign institutional investors (FII) started pouring in India.

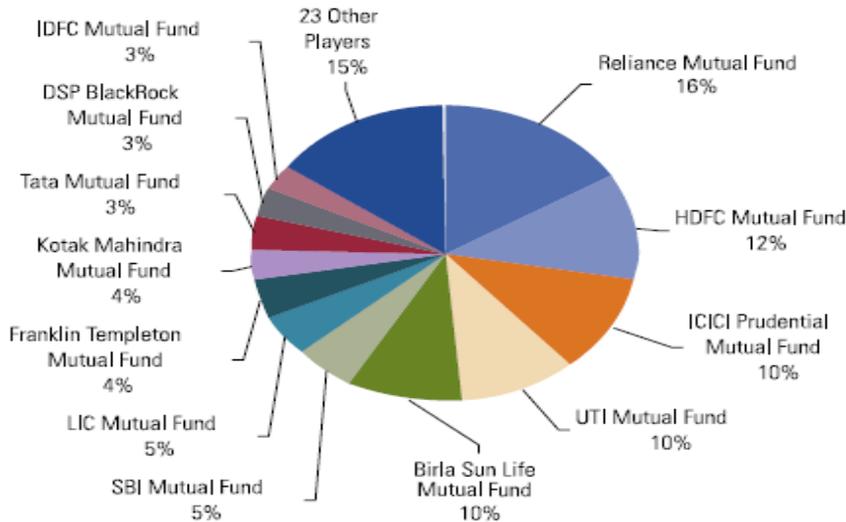
On the back of Master Gain 92, the mutual fund manager Morgan Stanley in 1993 also came out with its mutual fund scheme. That was also oversubscribed. During this time a plethora of mutual fund schemes were issued in the market and public responded favorably to them. Unfortunately, the two popular schemes - Master Gain 92 and Morgan Stanley mutual fund - heavily disappointed the general public by failing to provide minimum (at least contemporary highest bank fixed deposit interest) return. This acted as dampener for mutual fund schemes at that time. Though innumerable mutual fund schemes so far have appeared but no such craze has developed as what noted for Master Share and Morgan Stanley mutual fund. The later parts of this article will try to focus on how the role of MF can be made more effective and conducive to the society in general in the context of economic reforms.

The era of private mutual fund

From 1993 onwards the mutual fund witnessed the entry of private players. The economic reforms opened door to the private Mutual Funds both domestic and foreign. The Kotak Pioneer mutual fund (now merged with Franklin Templeton) was the first to be registered in July 1993. Over time the AUM (Assets under Management) of private players have gone up excessively and in 2009 the situation was quite different. The Diagram-1 shows the picture more vividly.

DIAGRAM - 1

Market Share of Players as of March 2009



Source: AMFI data

(The chart indicates clearly that Mutual Fund market is being dominated by the private mutual funds. The share of UTI or mutual funds owned by public sector banks or LIC is quite low.)

With passage of time many MF companies both Indian and foreign entered the market and their dominance is now known to all and requires no mention. If things go in this manner many new players will join in the coming days and this industry will achieve more maturity.

Common investors' lack of knowledge about capital markets and the role of Mutual fund

It has been noted that common investors in general lack the required skill and competence which are very much required for investment in capital market especially in equity market. Mutual funds with its team of experts provide the necessary information, knowledge and the timing of investment on behalf of ordinary investors thereby providing the safety and reliability that the ordinary investors expect from a reliable institution. The managers of mutual funds have the necessary infrastructure by which they can access to information which is required for analysis of each project / company under the then economic scenario and based on the result they determine their investment portfolio. The research in respect of different areas of financial investment is their main task.

The return what is expected of an investment by ordinary individual is virtually not absolutely guaranteed by mutual fund when the investment is channelized through them. Like any other business, there is always some risk involved in schemes of mutual funds as well. It is universally true that capital market investment is subject to uncertainties and variation of return. Therefore perfect guarantee of return is never assured of by any Mutual Fund. However, Mutual Funds make an attempt to spread investments in securities across wide ranges of industries and sectors and thus the risk is spread over various items and reduced.

Diversification lowers the risk because all stocks may not move equally in magnitude and in the same manner at the same time. Mutual Funds also invest their fund in debt schemes and other RBI approved schemes (money market and Govt. Securities Market) to minimize the risk of

various investment schemes. Because of diversified portfolio, mutual fund reduces the risk of earning even in dull phase and the fund managers thus try to ensure some amount of return which in ordinary course may not be available to ordinary investors in such situation.

In this way common investors minimize their risk as well as secure steady return from mutual fund.

From the aforesaid statements it is well understood that the responsibility of fund managers is immense. It is to be remembered that occasionally in bull phase there are tremendous rush for investment in public issues. Moreover, a lot of public issues simultaneously appear for subscription from public. Under the circumstances, it is practically difficult for ordinary investors to judge each project/public issue. In such situation, the need for well defined financial institutions is felt and Mutual Funds take the cudgel on behalf of ordinary investors.

Again, especially in bull period, ordinary investors are not assured of allotment of equity shares by the reputed companies because application for small lots through massive numbers and naturally only a small fraction of small/retail investors get the shares of the desired companies. Mutual Funds again on behalf of the ordinary investors can procure these shares for variety of schemes when they make up their portfolios.

Sometimes some good companies offer right shares at high premia which are beyond the capacity of purchase by the small investors or even in extreme bear phase these good shares often remain at a significant higher level and remain out of reach of these sections of people. MF on behalf of this conglomeration of investors procures good shares to provide good return to the investors when sunny days begin. Thus ordinary investors become the owners of expensive shares simply by investing even a meager amount say Rs 500.00 in MF scheme.

Growth of Mutual Fund in India

At present the number of SEBI registered mutual fund is almost half a century. At the end of 1993, the mutual fund industry had assets under management of Rs.47,004 crores. With the advent of private players the growth of Mutual Funds was quite significant and assets under management were increasing rapidly.

Actually our Mutual Fund industry staged a spectacular development during the period of 2002 to 2008 during which time corpus Mutual Fund increased to a great extent. However, there was adequate reason for such massive rise. During this time our stock market made a sustained rally over the years and attained astronomical figure of 21000. MFs also offered good returns to their investors for a few years. Some impetus was there for MF.

DIAGRAM-2

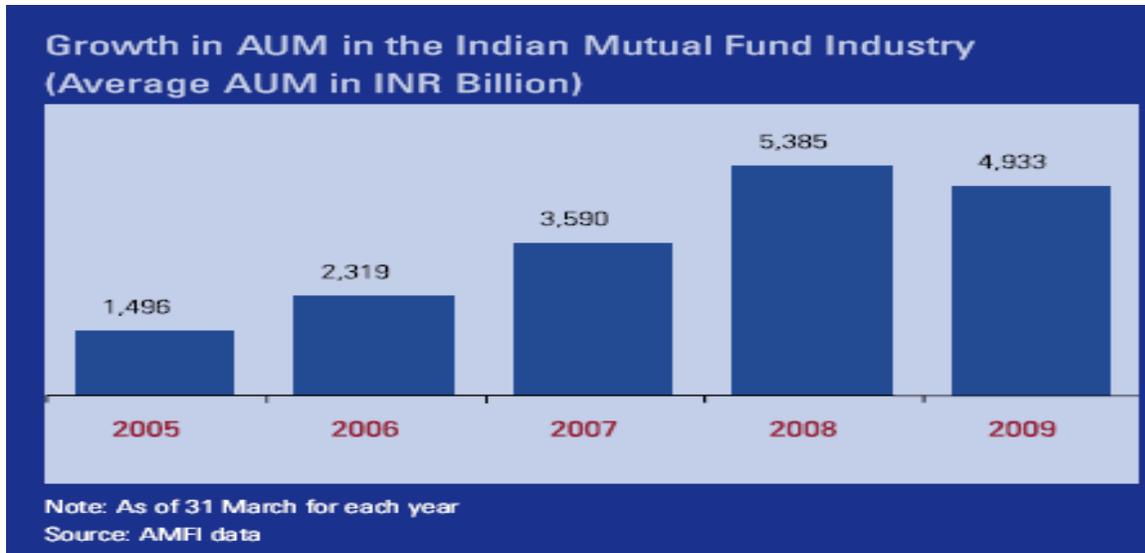


Diagram 2 shows the year wise growth of MFs from 2005 to 2009.

At the end of January 2003, there were only 33 mutual funds with total assets of Rs.1, 21,805 crores. By March, 2008 assets under management shot up to Rs.5,38,500 Crores (approx) (diagram 2 corroborates that) under 421 schemes.

“Mutual fund industry has been undergoing drastic changes in the past few years. After crossing the INR 8000bn size in May’10, the total corpus of mutual funds witnessed a decline in June’10 and stood at INR 6758bn largely owing to redemption pressure on account of advance tax payments and 3G spectrum auction payments. Indian equity market sentiments remained weak owing to the volatile movements in stocks largely on the back of fear of double dip recession and deepening of the Euro zone crises”. (Report from ICICI Bank in 2010)

However, It has grown to over 7 lakh Crores by 31st March 2011, thus within 5 years it has increased to almost 5 times. Still AUM of MF is less than 10% of GDP.

The world-wide fall of stock market because of subprime effect in US also caused havoc with Indian MF industry in 2008-09. Sensex dropped below 8000 mark and NAV (Net Asset Value) of various schemes of MFs also dropped significantly. Huge redemptions also took place. New issues suffered a lot. As a result, AUM decreased to some extent in Indian MFs industry.

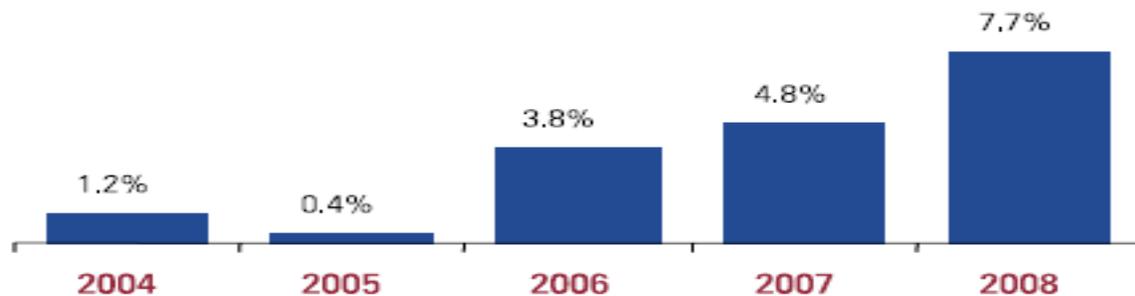
However, this growth has been limited mainly to urban areas of the country while participation from rural areas is very poor. We will try to identify causes of such discrepancies in following paragraphs.

Low retail participation from areas other than big cities and responsibilities of Mutual Funds

The exposure of household savings in mutual fund (Diagram-3) is insignificant compared to household investment in banks/post offices and insurance agencies. This is mainly because MF is popular and confined with urban middle and high income segment only. The majority of rural population was left outside the purview of MF, perhaps due to inadequate infrastructure for penetrating the rural sector.

DIAGRAM-3

Share of Mutual Funds in Households' Gross Financial Savings in India



Source: RBI data

Note: As of 31 March for every year

However the scenario has been slightly changed recently as is evident from the following paragraph.

“Only 11 per cent (that is, 24.5 million investors) of the households surveyed made investments in the securities market. It was also found that a chunk of the investors *were urban Indians*, what with **20 per cent of the urban households** invested in markets as against **6 per cent in rural India**. From 2004 to 2008 the mutual fund industry in India witnessed a spectacular growth compared to other parts of the world but still fund under our mutual fund sector is significantly lower than developed nations. This signifies that penetration of the mutual fund in the country as a whole with special reference to the rural sector (which constitutes the largest section of people) is insignificant. (Businessline –“How Indian households save and invest”) (www.thehindubusinessline.com)”

Penetration of MFs into tier II and tier III cities is very low, though their overall population is much higher than the big cities. With establishment of proper infrastructure and development of appropriate schemes to attract the low income groups, mutual fund industry can penetrate deep into that section.

According to a report published by KPMG and CII in 2009 it was noted that despite clocking growth rates that were amongst the highest in the world, the Indian mutual fund industry continued to be a very small market; comprising 0.32 percent share of the global AUM of USD18.97 trillion as of December 2008 .

Perhaps economic factors coupled with literacy or perception of mutual fund and their activities stand in the way of investment in mutual fund. The sentiments are not adequate enough to intrigue them to channelize their savings into this sector. To bring the people under their umbrella needs a gigantic effort on the part of the mutual fund. It is sure our MFs are quite competent enough to accept this challenge. Their marketing department should be armed with proper programmes and schemes to attract rural and non-urban people.

Marketing department of these institutions may contemplate or explore possibilities of introduction of Schemes in the style of ‘KISHAN ROJGAR’ or ‘GRAMEEN SURAKSHA’ etc. purely for this untapped rural segment of people with some special incentives, say issue of units at a slight discount and removal of entry /exit load etc. To this effect, the Government controlled MF should take the leading role. However, the private MFs cannot keep themselves away as private MFs hold the bulk share AUM.

Lack of stability of return from various schemes casts shadow on popularity of MF

At present, the craze for mutual fund schemes is very poor as many mutual fund schemes have even failed to offer a return equal to the bank interest. Some are trading at a NAV much below the face value. This is mainly due to poor performance of many mutual fund schemes because of significant fall in capital market index. **Of course there are some schemes which are still offering good returns.** But the percentage is quite low. Table-1 will provide an idea of the performance of some mutual fund during 2011). This reveals that many such schemes are not at all attractive with respect to earning.

Table -1

(returns in %)

Scheme Name	1mth	1yr	3yr	5yr	Inception
ICICI Prudential Equity & Derivatives Fund - I O - IP -	0.50	9.04	6.59	NA	7.65
ICICI Prudential Equity & Derivatives Fund - I O - Reta	0.43	8.81	6.36	NA	7.41
UTI Spread Fund - Growth	0.72	7.85	6.92	7.74	7.69
Birla Sun Life Savings Fund - Institutional - Growth	0.78	8.36	7.01	7.48	6.81
Birla Sun Life Savings Fund - Retail - DAP	0.67	7.31	NA	NA	5.61
ICICI Prudential RIGHT Fund - Growth	-7.22	2.61	NA	NA	10.92
HDFC Childrens Gift Fund - Investment Plan	-5.12	10.26	17.63	13.21	17.78
ICICI Prudential Balanced - Growth	-5.04	5.07	10.35	8.40	13.72
Franklin Templeton Capital Safety Fund - 5 Years Plan -	-0.87	3.87	8.86	NA	7.00
Escorts Income Bond - Growth	-0.07	20.49	13.30	12.66	8.50
Sahara Short Term Bond Fund - Growth	0.76	13.11	NA	NA	8.97
UTI Gilt Advantage Fund - Long Term Plan - Growth	1.71	8.49	9.06	7.27	8.04
Franklin Pharma Fund - Growth	-6.00	7.58	27.60	17.70	15.79
Birla Sun Life MNC Fund - Growth	-6.92	4.79	23.32	14.49	19.15
Reliance Money Manager Fund - Retail - Growth	0.75	8.00	6.74	NA	7.37
IDFC Liquid Fund - Plan F - Growth	0.63	7.60	NA	NA	6.94
ICICI Prudential Service Industries Fund - Growth	-8.88	-10.25	3.35	6.70	8.03
ICICI Prudential Interval Fund -	0.80	7.78	NA	NA	5.86

Annual Interval IV - I..					
IDFC Equity Fund - Plan A - Growth	-8.46	-6.53	NA	6.37	7.20
IDBI Ultra Short Term Fund - Growth	0.78	NA	NA	NA	8.56
Peerless Income Plus Fund - Growth	-0.20	4.45	NA	NA	4.90
Birla Sun Life Govt Securities Fund - Short Term Debt -..	0.59	5.73	4.89	5.21	5.85
ING Latin America Equity Fund - Growth	-6.97	-5.52	1.53	NA	-0.39
UTI Pharma and Healthcare Fund - Growth	-6.93	10.47	17.68	13.03	12.72
Franklin FMCG Fund - Growth	-3.73	12.30	24.67	15.88	17.28

Source: appuonline.com

According to a report published by “Standard and Poor” in Sept 06, 2011 that more than 60% of large cap schemes of Indian MFs have failed to perform in connection with benchmark index and are producing low returns. Even the 53% of diversified equity funds have been underperformer. All these have been happening for the last 5 years.

Table-2 shows the percentage of funds outperformed by their relative benchmark index has been given by S&P (details on the Standard & Poor’s Index Versus Active Funds (SPIVA) scorecard are available in www.spiva.standardandpoors.com and www.crisil.com). (Report published in 2011).

When the BSE Sensex surpassed 20,000 points in 2010, Indian MFs cut a very sorry figure, the reason for which was not clear at all.

Table 2

Source: www.spiva.standardandpoors.com and www.crisil.com

There are reports that some fund managers connive with company promoters, and market operators rig and do circular trading. Front running is an illegal activity whereby a fund manager or fund official makes personal gains by making trades on his account before doing a trade for the fund. This causes losses for the fund investor and is akin to stealing. Such crimes were noted by SEBI.

Some MF companies were at one time under the scanner of SEBI and reputed fund houses like HDFC and L&T were fined for insider trading and other illegal activities. This has also dampened the confidence of the public.

These were the stories of first decade of this new millennium. In nineties the mutual funds faced

% of funds outperformed by the benchmark index

Fund category	Benchmark index	1-year	3-year	5-year
Large Cap	S&P CNX NIFTY	60.61	60.00	65.00
Diversified	S&P CNX 500 EQUITY INDEX	53.62	51.28	55.71
ELSS	S&P CNX 500 EQUITY INDEX	37.84	56.67	65.38
Balanced	CRISIL BalanCEX	60.00	51.61	50.00
MIP	CRISIL MIPEX	49.06	46.94	44.68
Gilt	CRISIL Gilt Index	41.18	64.52	53.13

debacle in many schemes. In nineties SEBI conducted a review of performances of a few MF schemes which offered assured return. Dhanvarsha 4 and 5 of LIC failed to provide assured returns and LIC had to cough up of Rs190 Crores as loss to protect unit holders. Ind Jyothi of Indian bank was unable to pay assured returns to unit holders for the year 1996-97 and 1997-98 due to inadequacy of distributable profits. As per SEBI instruction the Indian Bank had to compensate the unit holders. Similar incidents occurred for also Punjab National Bank when PNB Mutual Fund failed to provide assured returns to unit holders.

To protect the interest of the MF investors, it may be suggested that MF companies holding more than 15% of underperformer or low yielding (return is less than bank FD interest) schemes should not be allowed to undertake fresh invitation from public to invest in their schemes till their performance are improved to the desired level.

Hidden costs and lack of transparency is deterrent to MF schemes:

Besides Mutual Funds have some disadvantages like hidden fees (management fee), sale charges, high capital gain distribution (MFs pay the dividend distribution tax as well as capital gains tax on a few types of schemes such as Debt Mutual Fund, Money Market Funds & Liquid Funds) etc. Transparency is an important factor in MF. Though proper legislation is there to get an idea of the investment mode of a MF company, but this is quite beyond the capacity of the ordinary investors and therefore the investors are deprived of getting the requisite information. It is quite difficult for an investor to get an idea of the investment pattern or what constitute the portfolio. Many a times an underperformer scheme is merged with a good one to save the investors. Now the question arises why a scheme becomes underperformer when professionally experienced managers are at the helm of affairs.

It has been found that many mutual fund schemes have been merged with other good schemes. Generally this kind of situation arises when the particular schemes fail to bring sufficient return for their investors. To offer reasonable return to the investors some good schemes are sacrificed. The number of mutual fund houses is increasing; with many foreign mutual funds setting up funds in India the industry has witnessed several mergers and acquisitions. Sometimes all the portfolios of a mutual fund are acquired by another mutual fund. *All these do not send encouraging signals to the investors.*

At present most of the companies are providing reports on various aspects on-line. This requires investment on computers and broad band facilities on the one hand and knowledge of operation of computers on the other hand. This is a big barrier for ordinary retail investors. Previously a quarterly report on portfolio of each scheme used to be sent to investors to enable them to get an idea of their portfolio but such practices now have been discontinued.

Efforts should be made on behalf of the MFs to inform the investors about the scripts in which investments have been made, the average value of each script-this will help the investors to know at least roughly when the majority of shares of any script has been purchased, how much idle fund is lying, average monthly redemptions and average monthly inflows in case of open ended scheme. Investors should also be informed why underperforming is happening in the event of rise of index. If any imminent danger is foreseen MFs should take appropriate decision and dispose of the majority of the holding to the benefit of the investors i.e. the NAV should not be allowed to go down drastically with the fall of index. Atleast FIIs should not be allowed to rule the market.

Scope of Mutual Funds in the capital market segment

At one time generally during the period of nineteen sixties, seventies and eighties the Indian capital market was virtually ruled by UTI. With the beginning of economic reforms in nineties the controlling power has been shifted gradually from the hand of UTI to private players. In other words the Govt. control was replaced by private institutions specially Foreign Institutional Investors (FIIs).

In spite of huge corpus under the possession of Mutual Funds the stock market now-a-days is virtually under the control of FIIs. This fact has been noticed time and again in Indian perspective. [As on May 31, 2011, the total assets under management of the MMMFs (Money Market Mutual Funds) were placed at Rs.1, 83,622 crores, 25 per cent of the aggregate assets under management of the Mutual Funds ... Address by Dr Subir Gokarn, Deputy Governor of the Reserve Bank of India, at the CII (Confederation of Indian Industry) 7th Edition of Mutual Fund Summit 2011, Mumbai, 22 June 2011].

A comparative view of the activities of FII and Mutual Fund has been shown in Table-3.

From June 2009 to December 2010 the BSE Sensex rose from 14,493 to 20,509. A close look will reveal that during this time the MFs sold shares practically continuously but the FIIs were net buyers during this period. The extent of buying by FIIs was much more than the selling figure of MFs. The result was gradual increase of sensex. The behavior of MFs was quite confusing. Was it that the investors were seeking redemption? This answer is difficult to get. During this time most MF schemes were underperformer.

Table - 3

Year	Net Purchase of FII (Rs in Crore)	Net Purchase of Mutual Fund (Rs in Crore)	Average BSE Sensex
December 2010	2050	1377	20509.09
November 2010	18293	-101	19,521.25
October 2010	28563	-5801	20,032.34
September 2010	24978	-7326	20,069.12
August 2010	11687	-3169	17,971.12
July 2010	16617	-4405	17,868.29
June 2010	10508	-1107	17,700.90
May 2010	- 9436	98	16,944.63
April 2010	9361	-1410	17,558.71
March 2010	19927	-4082	17,527.77

Feb	2010	1216	-696	16,429.55
Jan	2010	-762	-1340	16,357.96
December	2009	12213	-1765	17,464.81
Nov	2009	5497	-695	16,926.22
October	2009	9077	-5194	15,896.28
September	2009	13138	-2334	17,126.84
August	2009	4902	570	15,666.64
July	2009	10664	1820	15,670.31
June	2009	3830	839	14,493.84

Source: www.indiabulls.com

Again from November 2007 to March 2009 the FIIs continuously sold shares approximately to the extent of 10 billion dollars and the market fell to below 8000. The buying by MFs/DIIs could not resist the fall. The extent of buying by the DIIs (which includes MF mainly) was numerically low but not poor at all. Here again the question revolves our mind that whether the idle fund at the hands of MFs was adequate enough or not? Or there were apathy on the part of MFs to act properly to stem the rot. This is a very sensitive and debatable issue. It is to be accepted that at present there is very feeble attraction for MF schemes on the part of the investors. Mega issues of mutual funds are almost things of the past.

	FII			DII		
	(Rs in crore)					
	Purchase	Sale	Net investment	Purchase	Sale	Net Investment
<u>April-2009</u>	38,871.53	33,311.43	5,560.10	17,871.64	8,653.97	-782.33
<u>March-2009</u>	31,646.90	32,330.47	-683.57	19,256.22	5,304.69	3,951.53
<u>February-2009</u>	22,066.26	24,899.69	-2,833.43	13,438.92	0,664.36	2,774.56
<u>January-2009</u>	28,447.81	33,620.63	-5,172.82	18,644.12	4,925.98	3,718.14
<u>December-2008</u>	29,362.68	28,327.87	1,034.81	16,472.77	4,566.49	1,906.28
<u>November-2008</u>	28,093.92	33,552.88	-5,458.96	15,196.15	2,322.00	2,874.15

<u>October-2008</u>	48,413.60	64,067.10	-15,653.50	26,254.38	5,458.08	10,796.30
<u>September-2008</u>	65,932.27	78,435.01	-12,502.74	25,415.62	6,202.66	9,212.96
<u>August-2008</u>	44,460.52	49,916.64	-5,456.12	17,813.52	4,841.14	2,972.38
<u>July-2008</u>	62,050.69	66,654.69	-4,604.00	23,217.26	1,690.07	1,527.19
<u>June-2008</u>	60,693.06	73,360.22	-12,667.16	23,754.33	5,126.36	8,627.97
<u>May-2008</u>	58,982.92	65,678.51	-6,695.59	26,254.47	7,976.44	8,278.03
<u>April-2008</u>	59,546.97	62,083.85	-2,536.88	21,678.24	8,277.26	3,400.98
<u>March-2008</u>	68,472.59	72,236.39	-3,763.80	23,606.43	0,658.92	2,947.51
<u>February-2008</u>	64,267.47	68,318.59	-4,051.12	24,064.99	0,056.65	4,008.34
<u>January-2008</u>	97,579.50	127,027.01	-29,447.51	44,638.58	8,223.89	16,414.69
<u>December-2007</u>	71,453.70	78,273.50	-6,819.80	29,495.28	4,543.14	4,952.14
<u>November-2007</u>	83,268.52	96,957.78	-13,689.26	31,937.20	3,383.79	8,553.41
<u>October-2007</u>	122,384.57	114,368.33	8,016.24	34,703.35	6,055.53	-1,352.18
<u>September-2007</u>	67,664.52	51,306.56	16,357.96	21,424.73	6,188.40	-4,763.67
<u>August-2007</u>	52,479.43	64,817.90	-12,338.47	26,496.41	7,347.14	9,149.27
<u>July-2007</u>	69,757.41	61,888.56	7,868.85	23,643.81	4,231.23	-587.42
<u>June-2007</u>	45,673.87	47,035.12	-1,361.25	19,374.66	4,814.40	4,560.26
<u>May-2007</u>	46,316.28	46,436.25	-119.97	21,959.33	8,974.43	2,957.10

Source: www.indiabulls.com

In the light of the above data it can be concluded that it is the right time that our MFs should play a dominant role in the capital market rather than being sleeping watch dogs. **It is to be remembered that corpus of MFs is quite large and comparable with FIIs.** Had they acted aggressively in 2008-2009 our capital market might not have suffered so much. Again they can play a crucial role in resisting too much volatility in the capital market and restore investors' confidence.

Roles expected from Mutual Funds

The reforms have opened the door wide open to innumerable factors which can develop profound impact on the sentiment of our capital market and in fact such things are happening practically every day and our MFs are now being subjected to vulnerability of world economic turmoil. At one time, especially in eighties and in early nineties investors turned to Unit Trust for financial gain and they were suitably rewarded every year. The history of Unit 64 is an example. But such expectation has been belied now. Except for a few MF schemes the majority of them disappoint investors. At one time Indian market and MFs were controlled by Unit Trust and other Govt. controlled financial institutions and **socialistic behavior** was noticed in their action, but now there has been a major change in attitude due to dominance of private players, both national and international.

However, all the Mutual Funds operating in India clearly have a significant role to play in financial and economic development of the country. As they have the expert talent pool in their possession they can very well judge the national and the international economic affairs and the prospects of various national companies as well. Based on different risk-return investment opportunities, MF deploy the fund they collect from the large number of small and medium retail investors and can ensure a steady return for them. With the help of huge corpus as well as professionally qualified and highly experienced fund managers at the helm of affairs, they can play a dominant role in stabilizing the capital market rather than being a mute spectator. They can act as savior of capital market especially in case of economic doldrums. In short, Mutual funds have still immense prospect in India in view of the vastness of its population and growing income pattern.

References:

- Association of Mutual Funds in India (AMFI) - Copyright 2011
- Gokarn Subir (Deputy Governor of the Reserve Bank of India), Mutual funds and market development in India 7th Edition of Mutual Fund Summit 2011, Mumbai, 22 June 2011.
- KPMG in CII summit 2009, Indian Mutual Fund Industry-The Future in a Dynamic Environment
- Mishra Vaibhav Mukund Mutual Funds in India: Recent Trends and Development
- Tripathy Nalini Prava, Mutual Fund in India: A Financial Service in Capital Market, Finance India Vol. X No. 1, March 1996 Pages— 85–91
- www.appuonline.com
- www.icicigroupgpc.com
- www.indiabulls.com
- www.mutualfundsindia.com
- www.spiva.standardandpoors.com and www.crisil.com

Securitisation – A Risk Management Tool in Indian Banking Industry

Nibedita Roy*

Abstract

In India, there has been a steady growth in credit off take (i.e. loan disbursement) of banks over the past several years and at the same time there has been an increasing mismatch between growth of credit off take and growth in deposits. In other words, increasing credit demand had led to diminution in the liquidity of the banks and the financial institutions. This has eventually created a vacuum between the demand for finance and its consequent availability. In this respect, when several conventional methods of obtaining a business loan are either undesirable or not possible, there is the option of securitisation. The term securitisation may be referred to as creation of security in any financial transaction. In this respect, 'security' means a financial claim which is generally manifested in the form of a document and whose essential feature is marketability. The process thereby helps in improving various performance related measurements of the banking institutions by enhancing the loan portfolio of the banking institutions. This paper makes an endeavor to determine whether the process of securitisation is able to cast its beneficial impact on the Indian Banking Industry and its impact on the level of risk management of those institutions. Most previous literature in India is concentrated to the overall review of the securitisation instruments not specific to the banking industry. The results indicate that securitisation leads to growth in performance, asset quality improvement, enhancement of loan portfolio and ultimately better risk management.

Keywords: Securitisation, SPV, Originator, Structured Finance

Introduction

The term *securitisation* may be referred to as creation of security in any financial transaction. In this respect, 'security' means a financial claim which is generally manifested in the form of a document and whose essential feature is marketability. Therefore, *securitisation*, or in other words, *asset/receivable securitisation* means creation of marketable/tradeable securities based on cash flows of an entity's assets or receivables. It is a device of structured financing (i.e. the financing that is tailored as per the risk-return and maturity needs of the investors) by way of which the 'originator' (i.e. the organization initiating the securitisation transaction and in whose balance sheet the assets appear) pools together its interest in identifiable cash flows on assets receivables over time, sell such interest to an entity known as 'Special Purpose Vehicle (SPV)', or 'Special Purpose Entity (SPE)' and thereby achieve the purpose of financing. Identifiable cash flows refer to the cash flows generated by separate pools of assets in the balance sheet of the originator viz. car receivables, truck receivables, receivables from Department of Telecommunications, housing loan receivables, credit card receivables, bank loan receivables, receivables from equipment lease and so on. The SPV, in turn, utilizes this stream of cash flows to issue marketable securities, to the investors so as to arrange for the funds required to pay to the originator the value of such assets. Securitisation reflects innovation in the financial markets at its best. Such kind of innovation has become necessary due to various factors viz. the need for access to different innovative sources of financing, improving the cash flow position of an entity (i.e. cash flow streams generated by assets like loans and receivables), obtaining better liquidity position and issuing newer securities to new groups of investors according to the preferences of specific investors. Also, securitised instruments have come into being because of the urge to create a secondary market in mortgage financing. Risk management is yet another catalyst for the emergence of securitisation. When any asset / receivable (i.e. a cash flow) is securitised, it is removed from the balance sheet of the originator without recourse (i.e. all the risks associated

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with the asset are eliminated). By passing on these risks to the investors via SPV, originators are better able to manage their own risk exposures.

Securitisation in India has been in existence since early 1990s. The first securitisation deal took place in 1991 when Citibank raised Rs. 16 crore from GIC Mutual Fund by securitising some of its auto loans. Since then, a variety of deals have been undertaken. In 2002, *The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act* was enacted. The objective behind its enactment was the sale or securitisation of Non-Performing Loans (NPLs) by banks and financial institutions in favour of Assets Reconstruction Companies (ARCs) registered with the Reserve Bank of India (RBI) under SARFAESI. These guidelines are expected to have a far reaching impact on several issues and facilitate the development of a vibrant and robust securitisation market in India. In a capital-scarce economy like India, an opportunity that permits effective use of available capital hardly requires any major emphasis. Furthermore, the ability to diversify one's funding base by reaching out to new investor markets, without increasing the financial leverage and the cost of raising finance, is a significant benefit associated with securitisation.

The concept of securitisation has always drawn the attention of the analysts and the researchers since its initiation in India. Although this innovative mechanism has been applied in India in scattered items of assets in various organizations, but gradually, the tool became more restricted to the banking and financial institutions. Accordingly, this paper concentrates on the position of securitisation in the Indian banking industry and makes an attempt to determine whether securitisation is able to cast its beneficial impact on the Indian Banking Industry and its consequential impact on the level of risk management of those institutions. The beneficial impact is measured on the basis of certain parameters which will enable one to assess the future prospect of the mechanism in our country. But a conceptual understanding of the securitisation mechanism is necessary before turning to empirical analysis. So, the remainder of the paper is organized as follows: the conceptual overview of securitisation, the literature review, the objective of the study, the sample selection and research methodology, the analysis and findings and finally conclusion.

Conceptual Overview of Securitisation

The most common definition of securitisation is that it consists of pooling of assets and issuance of securities to finance the carrying of the pooled assets. It therefore, involves separation of the credit risk of one or more assets from the bankruptcy and credit risks of the owner of those assets i.e. *originator* and the issuance and sale of securities backed by the cash flow from those assets. Originator is the entity that securitises assets. Securitisation mechanism mainly generates from a company having receivables as one of its major assets in its balance sheet. This company is normally referred to as the '*originator*'. Once a suitably large portfolio of assets has been originated, the assets are analyzed as a portfolio, and then sold or assigned to a third party which is normally an '*SPV*'. The SPV is created by the originator for the sole purpose of holding the receivables and issuing tradeable securities to the investors. The performance of these securities is directly linked to the performance of the underlying assets i.e. loans and receivables. The way the investors have a right to share the cash flows arising out of the pool of receivables beneficially owned by them is referred to as *securitisation structure*. The nature of the investors' interest in the underlying assets can be of two types. *Pass-through* securitisation is a structure

where the SPV makes payments, or rather, passes payments to the investors as and when the receivables are collected. In short, a pass-through structure transfers interest in the receivable in favour of the investors through the SPV. The other is the *pay-through securitisation* where the payments to the investors are routed through the SPV who does not strictly pay the investors only when the receivables are collected by it. The investors are paid on stipulated dates irrespective of the collection dates.

Thus, from the above discussion it is clear that securitisation is a process of re-utilization of asset which facilitates the creation of fund and accordingly can bestow a number of advantages to the organizations introducing it and also to the related parties involved in the securitisation transaction. In India, the concept of securitisation is also prevalent and accordingly for the purpose of the study an effort has been made to identify the various types of work that has been done in the various countries relating to securitisation. Accordingly, the next section lays down the brief abstract of the works that has been done in different areas.

Literature Review

Over the years, various attempts have been made by the researchers to evaluate the different aspects of securitised instruments and examine the justifiability of its introduction in the financial markets. **Lipkin (1992)** stated that as real estate values continue to deteriorate and liquidity evaporates, the crisis in thrift institutions, banks, and insurance companies worsens. Consequently, there arises an unquestioned need for creative products to serve as non-traditional sources of financing, which has been very well solved by securitisation of real estates. **Frost (1997)** has specified that asset securitization is a financial innovation in which corporations sell financial assets to a specially formed entity that in turn taps financial markets for the purchase price. The device provides firms an alternative to raising capital through traditional debt and equity markets. Practitioners of the approach tout securitization as a means through which a firm can lower its overall cost of capital by limiting the risk facing investors in the securitized assets. Commentators have described asset securitization as “one of the most important financing vehicles in the United States.” Interest in the device is increasing dramatically as more companies see it as a way to decrease their cost of capital. In his article he examined the reasons for which asset securitization has become such a popular financing device. He developed an analytical model that focuses on the market failures which explain the reasons firms use asset securitization. **Loutskina (2004)** conducted an extensive study to show that by allowing banks to substitute cash and securities for loans, securitisation reduces the sensitivity of bank lending to the availability of the external sources of funds and thus reduces the need for the monetary authority to affect bank lending through open market operations. **Ferguson (2008)** analyzed the position of securitisation of Non-Performing Loans in Russia. According to him asset securitization is a burgeoning trend in Russia as companies burdened by poor credit ratings seek access to capital at lower costs than they would be allowed in traditional equity or debt markets.

In Indian context, **Ketkar and Ratha (2001)** suggested that developing countries cannot obtain low-cost, long-term loans during financial crises. Thus, securitisation of future flow receivables can help investment-grade public and private sector entities in these countries obtain credit ratings higher than those of their governments and raise funds in international capital markets. **Kothari and Gupta (2004)** studied the development of mortgage-backed securities market in India and examined the relevance of securitisation, both agency-backed

securitisation (i.e. MBSs issued by government sponsored agencies which promote mortgage secondary markets) and private label securitisation (i.e. mortgage backed issues securitised by non-agency financial institutions) over the development of housing refinance market in India. The research conducted till date in India has focused on theoretical aspects mostly with little emphasis on empirical research. Also, none of the empirical studies conducted so far focused on the impact of securitisation on the Indian Banking Industry, the sector affected most by securitisation. Hence, in view of this research gap the present study assumes significance in Indian context.

Objective of the Study

The study aims at examining different parameters that are influenced as a result of introduction of the securitisation mechanism and to understand the impact of this innovative financing mechanism on the performance as well as risk management factors of the institutions of the banking industry in India.

Sample Selection and Research Methodology

The redefinition of the term “securities” and the establishment of Securitisation and Reconstruction of Financial Assets and Enforcement of Security (SARFAESI) Act, 2002 subsequently have paved the way for full-fledged implementation and practice of securitisation in India, especially by the banks, financial institutions and NBFCs from 2000 onwards. Accordingly, a sample comprising those Indian banks and NBFCs (henceforth institutions), that have initiated and undertaken securitisation on a more or less continuous basis and at least for a period of 3 years over the period 1999-2000 to 2008-2009 [as per information available in Credit Rating Information Services of India Ltd. (CRISIL) website (www.crisil.com)] has been selected to determine the factors that are influenced by the initiation of the securitisation mechanism in the Indian banking sector. The sample and the collected securitisation information (i.e. volume of securitisation in Rs. million) are restricted by the availability of data in the *structured finance* list of commentaries under the main heading of *ratings* in CRISIL website. Accordingly, the sample comprises 12 institutions, of which 9 are banks viz. *HDFC Bank Ltd., Kotak Mahindra Bank Ltd., HSBC Ltd., Standard Chartered Bank, Axis Bank Ltd., Bank of America, Yes Bank Ltd., CitiBank N. A. and ICICI Bank Ltd.* (in the banking institutions category) and 3 are NBFCs viz. *Kotak Mahindra Prime Ltd., Shriram Transport Finance Co. and Magma FinCorp. Ltd.* The sample is then analyzed graphically by comparing securitisation volume vis-à-vis certain selected parameters. The analysis has been done keeping in mind the broad factors of *growth in performance, asset quality improvement, enhancement of loan portfolio and better risk management.*

First of all, in order to ascertain the impact of securitisation on performance, four parameters are taken into consideration. The purpose of this analysis is to draw a relation between the availability of the *loans and advances* and the volume of securitisation as the basic presumption is that securitisation, theoretically being an excellent source of funds, should improve the supply of loans and advances. This should eventually boost the growth in interest income. In order to highlight the change in interest income, two parameters are taken into consideration-*total interest income as percentage of total assets and net interest income (NII) as percentage of total assets.* The former represents the total income earned from the assets (i.e. loans and advances) of the institutions and the latter signifies the difference i.e. spread between revenues generated by

interest-bearing assets and the cost of servicing (interest-burdened) liabilities. The assets typically include commercial and personal loans, mortgages, construction loans and investment securities. The liabilities consist primarily of customers' deposits. NII is the difference between (a) interest payments the bank receives on loans outstanding and (b) interest payments the bank makes to customers on their deposits. As securitisation not only helps in enhancing the gross interest income but also the net interest income, both total interest income and net interest income are taken as indicator variables and compared alongside securitisation volumes. As interest forms the basic component of profit for banking institutions, this boost in interest income as a result of securitisation should increase the profit of the banking institutions as well. In other words, the greater the supply of loans and advances due to securitisation, the greater the gross amount and the spread in interest income, and hence the higher is the profit i.e. *profit after tax (PAT)* of institutions. So, the PAT figures have also been considered vis-à-vis the securitisation volume to show the effect of securitisation on the profit of banks and NBFCs. For asset quality improvement, two parameters viz. *Net NPA as percentage of Total Assets and Investments/Total Assets* have been considered. The former implies the percentage of Net NPA in total assets of the institution. The lower the ratio the better is the asset quality of the institution. In India, though NPAs are simply sold out to ARCs without securities being issued against it, securitisation, in its true sense, of good receivables will effectively reduce NPA level as such in - balance sheet assets are churned off before they become NPA. As the risk level of an individual institution declines due to a decrease in the percentage of NPA in total assets, it gets reflected in the improved quality of asset composition of the institution. Further, for the latter parameter too, the lower the ratio, the better is the asset quality because the institutions instead of investing in securities, can concentrate more on loans and advances which usually generate more returns than investments. This is because the spread is higher if the bank provides loan than invest in securities [*as may be clear from the data on 31st March 2011, Benchmark Prime Lending Rate was around 7.60% to 8.50% and while interest rate on Government Bonds was around 7.75% to 8.30%* (Source: *www.rbi.org* and *www.tradingeconomics.com*)]. Accordingly, these two parameters are compared vis-à-vis the securitisation volume to examine this objective.

In respect of enhancement of loan portfolio, *loans and advances and investments* are considered together and compared with the securitisation volume. Liquid securities, also known as marketable securities, refer to those securities that can be converted into cash quickly at a reasonable price. The institutions invest a portion of their deposits in such securities after setting aside an amount for CRR. Securitisation increases the supply of funds and therefore the institutions are encouraged to lend more than invest as lending is more profitable than investing. Last, but not the least, the risk management aspect is measured in terms of *net worth*. Risk management refers to identification of risks in order to control and minimize the impact of unfortunate events. This controlled risk undertaken by the institution is ultimately reflected in an increase in their net worth. Net worth (sometimes called net liabilities) refers to the total assets minus total outside liabilities of an institution. Though the risk management issue has not been directly addressed, but an attempt has been made to make an indirect assessment of the level of risk management. Annual accounts data of the above-mentioned variables for the sample institutions over the period for which information on securitisation volumes are available have been extracted from the CMIE Prowess database and the RBI website (*www.rbi.org.in*). The selected broad issues are then framed into three null hypotheses (*as shown in table-I*) and are analyzed on the basis of simultaneous comparison of the securitisation volumes vis-à-vis the

various chosen financial performance indicators through graphs and charts. A satisfaction index is also constructed hypothesis-wise across sample units after compiling results. The null hypotheses are rejected (i.e. theory accepted) based on total satisfaction count across all sample banks and NBFCs (henceforth institutions) being greater than 50%. In other words, the hypotheses whose satisfaction count is 50% or less than 50%, in those cases the null hypotheses are accepted.

Table-I List of Null Hypotheses

<i>Sl. No.</i>	<i>Null Hypotheses</i>	<i>Selected Parameters</i>
Hypothesis 1	Securitisation does not help the banking industry to maintain a steady performance.	Loans and Advances, Interest Income as %-age of Total assets, Net Interest Income as %-age of Total Assets, Profit after Tax
Hypothesis 2	Securitisation does not improve the asset quality of the banking institutions.	Net NPA as %-age of Total Assets, Investments/Total Assets
Hypothesis 3	Securitisation does not enhance the institutions' loan portfolios more than their holdings of liquid securities i.e. investments.	Loans and Advances, Investments
Hypothesis 4	Securitisation does not help the institutions in better risk management.	Net Worth

A summary of the findings conducted on the basis of methodology, as discussed above, is presented in the next section.

Analysis and Findings

The analysis results of all the sample institutions to examine each of the 4 hypotheses are given in *table-II*. The sample graphs and charts leading to the following results are given in *Annexure-A*.

Table-II: Overall Hypotheses Satisfaction Index

<i>Hypothesis</i>	<i>Private Sector Banks</i>					<i>Foreign Banks</i>				<i>NBFCs</i>			<i>Total Count (%)</i>
	<i>HDFC Bank Ltd.</i>	<i>Kotak Mahindra Bank Ltd.</i>	<i>Axis Bank Ltd.</i>	<i>Yes Bank Ltd.</i>	<i>ICICI Bank Ltd.</i>	<i>HSBC Ltd.</i>	<i>Standard Chartered Bank</i>	<i>Bank of America</i>	<i>Citibank N.A.</i>	<i>Kotak M. Prime</i>	<i>Shriram Trans.</i>	<i>Magma</i>	
1.	√	√	√	√	√	√	X	√	X	√	X	√	75
2.	√	√	√	√	√	√	√	√	√	X	√	√	91.67
3.	√	√	√	√	√	√	√	√	√	√	X	√	91.67
4.	√	√	√	√	√	√	√	√	√	√	√	√	100
<i>Result</i>	100	100	100	100	100	100	75	100	75	75	50	100	

Note: (√) => Rejection of null hypothesis and acceptance of theory

(X)=> Acceptance of null hypothesis and rejection of theory

It may be observed from the summary analysis that *hypothesis 2* (securitisation does not improve the asset quality of the banking institutions.) and *hypothesis 3* (securitisation does not enhance the institutions' loan portfolios more than their holdings of liquid securities i.e. investments) are the hypotheses which reflect a 91.67% satisfactory index. Three institutions out of the total sample have accepted the null *hypothesis 1* (securitisation does not help the banking industry to maintain a steady performance) which ultimately leads to a 75% overall satisfaction index. *Hypothesis 4* (securitisation does not help the institutions in better risk management) shows a 100% satisfaction index. Thus, all the null hypotheses are rejected as the satisfaction count is more than 50%. Accordingly, what appears from the above findings is that the introduction of securitisation in the various sample institutions from the Indian banking industry had a positive impact on their financial performance, asset quality ratios, enhancement of loan portfolio and risk management when these institutions are compared with the respective chosen parameters for each of the hypothesis individually.

I. Conclusion

Securitization is an important tool used in finance. Finance studies and addresses the ways in which individuals, businesses, and organizations raise, allocate, and use monetary resources over time, taking into account the risks entailed in their projects. The activity of finance is the application of a set of techniques that individuals and organizations (entities) use to manage their financial affairs, particularly the differences between income and expenditure and the risks of their investments. Structured finance encompasses all advanced private and public financial arrangements that serve to efficiently refinance and hedge any profitable economic activity beyond the scope of conventional forms of on-balance sheet securities (debt, bonds, equity) in the effort to lower cost of capital and to mitigate agency costs of market impediments on liquidity. *Securitization provides the method utilized by the participants of structured finance to create the pools of assets that are used in the creation of the end product financial instruments.* The resulting financial instruments not only increase the supply of funds but also enable the institutions in better performance and risk management.

Securitisation is as necessary to the economy as any organized markets are. Securitisation in India has been in existence since early 1990s, though essentially as a device of bilateral acquisition of portfolios of finance companies. The first securitisation deal took place in 1991 when Citibank raised Rs. 16 crore from GIC Mutual Fund by securitising some of its auto loans. Since then, a variety of deals have been undertaken. Moreover, it is needless to mention that securitisation of loans, advances and receivables is mostly applicable to banks, financial institutions and non-banking financial companies (NBFCs), where such assets form a major component in the balance sheets, and as such in order to facilitate such organizations to allocate capital more efficiently, access diverse and cost effective funding sources and better manage business risks in an efficient manner, the concept of securitisation of loans and receivables has emerged. The analysis results point to the fact that securitisation improves the liquidity position, the risk management ability and the performance parameters of the sampled institutions. In other words, it may be said that the institutions and organizations which want to improve its liquidity, performance and risk management should opt for securitisation mechanism. However, the significance of securitisation may have been captured better if the analysis were done for a longer time period. Hence, a long run analysis of the effect of

securitisation is necessary to realize the full potential of this innovative financing mechanism in India.

References

Articles, Notifications etc.

- Ferguson, Thomas P., (2008), "Observations on the Securitization of Non-Performing Loans in Russia", *Posted at papers.ssrn.com/sol3*, p.7
- Frankel, Tamar, (1997), "Cross-Border Securitization: Without Law, But Not Lawless," *8 Duke Journal of Comparative and International Law* 255
- Frost, C. W. (1997). "Asset Securitization and Corporate Risk Allocation", *Tulane University, Tulane Law Review*, November, pp.6-7
- Henzler, Filip, (2004), "Pine Street I LLC: a case study in securitisation" *Posted at www. capital dynamics website*
- Hugh, Thomas, (1999), "A Preliminary look at gains from Asset Securitization", *Journal of International Financial markets, Institutions and Money, Volume 9 Issue 3*
- Kettering C. Kenneth, (2008), "Securitisation and its Discontents: The dynamics of Financial Product Development", *Cardozo Law Review, Volume 29*
- Ketkar, Suhas and Ratha, Dilip, (2001), "Securitisation of Future Flow Receivables: A Useful Tool for Developing Countries", *Finance & Development, IMF*, p.7
- Kothari, Vinod and Gupta, Abhishek, (2004), "Development of RMBS markets in India: Issues and Concerns", *Project work at the Indian Institute of Management Bangalore*, available at www.vinodkothari.com/vk_rmbs_article.doc, pp.7-8
- Lipkin, Pamela, (1992), "Real estate securitisation", *Appraisal Journal*, High Beam Research, p.6
- Loutskina, Elena, (2004), "Does securitisation affect bank lending? Evidence from Bank Responses to Funding Shocks", *The Quarterly Journal of Economics, MIT Press*, p.7
- Reserve Bank of India, (2002), "*The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Bill*", available at www.rbi.org.in
- _____, (2003), "*The Securitisation Companies and Reconstruction Companies (Reserve Bank) Guidelines and Directions*", available at www.rbi.org.in
- Schwarcz, Steven L., (1995), "The Alchemy of Asset Securitization" *Article published at Duke University Global Capital Markets Center*, available at www.law.duke.edu/fac/cv/schwarcz.pdf
- Sridhar, V., (2002), "Securitization in India – Opportunities & Obstacles", *A Discussion paper PGP 2002, IIM Calcutta*, available at www.vinodkothari.com/india_article

Books

- Fabozzi, Frank J. (1998), *Handbook of Structured Financial Products*, John Wiley and Sons, New Delhi
- Kothari, Vinod. (2000), *Securitisation*, Academy of Financial Services

URLs visited

- www.arcil.co.in
- www.crisil.com
- www.rbidocs.rbi.org.in/rdocs/PublicationReport
- www.rbi.org.in

Annexure-A

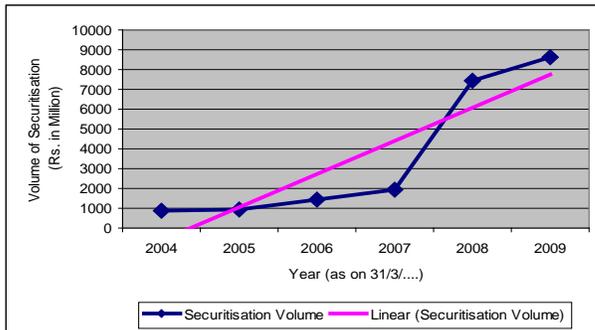
Hypothesis 1: Securitisation does not help the banking industry to maintain a steady performance.

Out of all the sample institutions, only two have been reflected in the annexure to support the overall summary analysis.

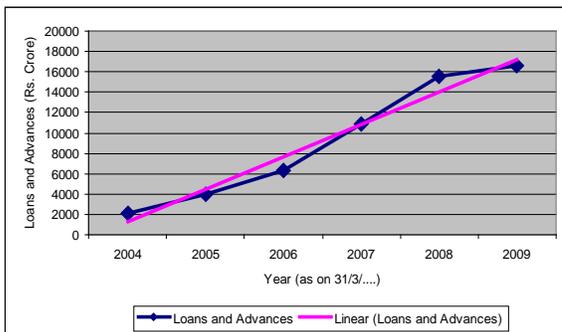
Kotak Mahindra Bank

Figure-1: Line Charts (with linear trend) showing Performance Parameters vis-à-vis Securitisation Volume

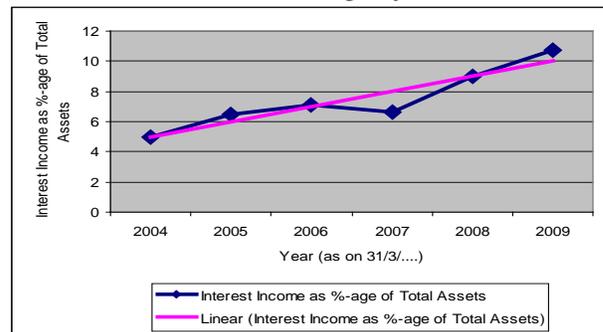
(a) Securitisation Volume



(b) Loans & Advances

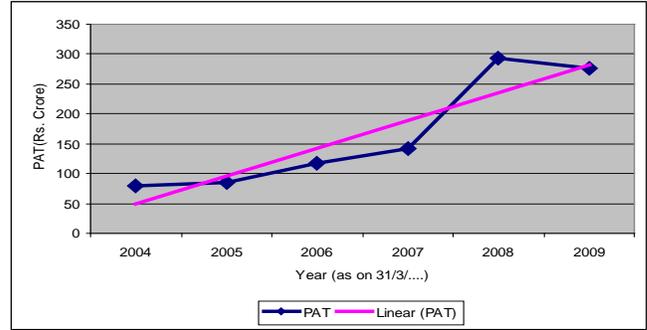
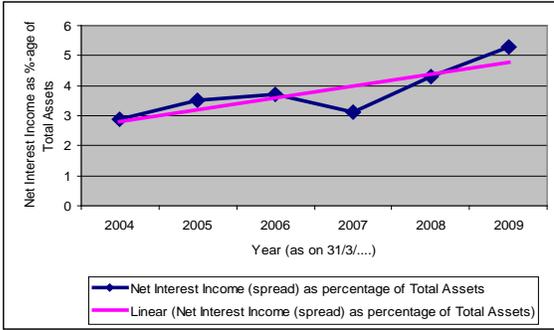


(c) Interest Income as %-age of Total Assets



(d) Net Interest Income (Spread) as %-age of Total Assets

(e) PAT

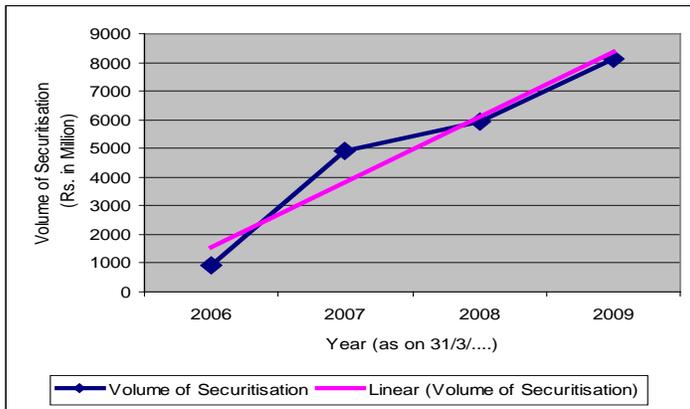


The loans and advances had increased over the various years as a result of increase in securitisation volume. In respect of the interest income parameters, viz. interest income and spread, both had increased over the years with a big upward leap in 2008 and 2009 in tune with securitisation volume. Such movements had its positive impact on PAT which also depicted an upward moving slope.

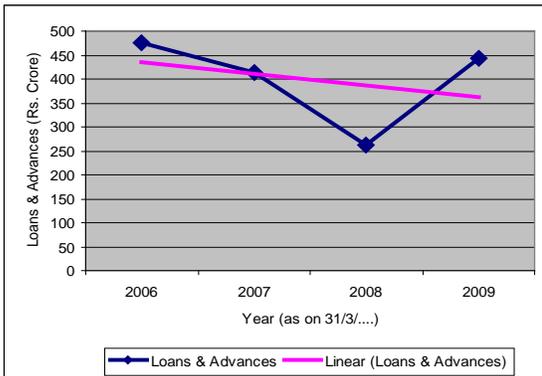
Shriram Transport Finance Co. Ltd.

Figure-2: Line Charts (with linear trend) showing Performance Parameters vis-à-vis Securitisation Volume

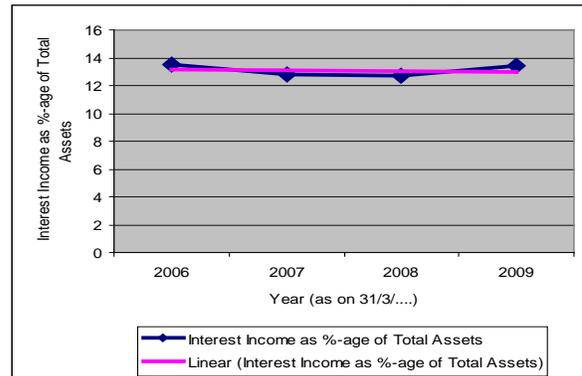
(a) Securitisation Volume



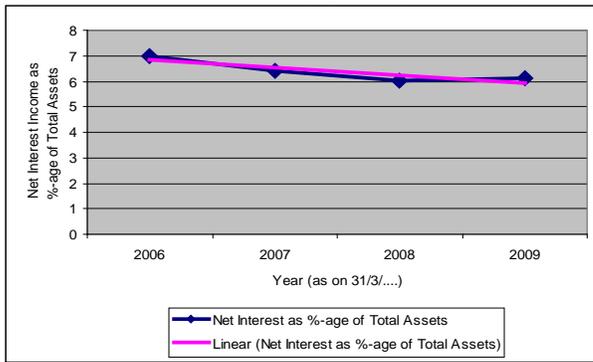
(b) Loans & Advances



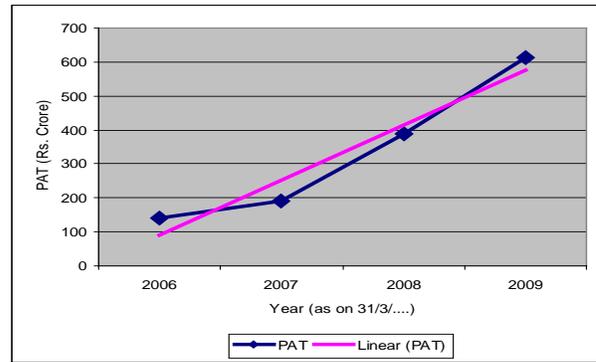
(c) Interest Income as Percentage of Total Assets



(d) Net Interest Income (Spread) as %-age of Total Assets



(e) PAT



Loans and advances, after decreasing in 2007 and 2008, increased in 2009. Even the interest income parameter also remained at a constant level over the various years. In fact, the net interest parameter showed a decreasing trend. PAT has increased gradually since 2007 as probably the income from other services provided by the institutions were high which maintained the growth rate of PAT. Thereby, taking into consideration the movement of the various parameters the null hypothesis is accepted.

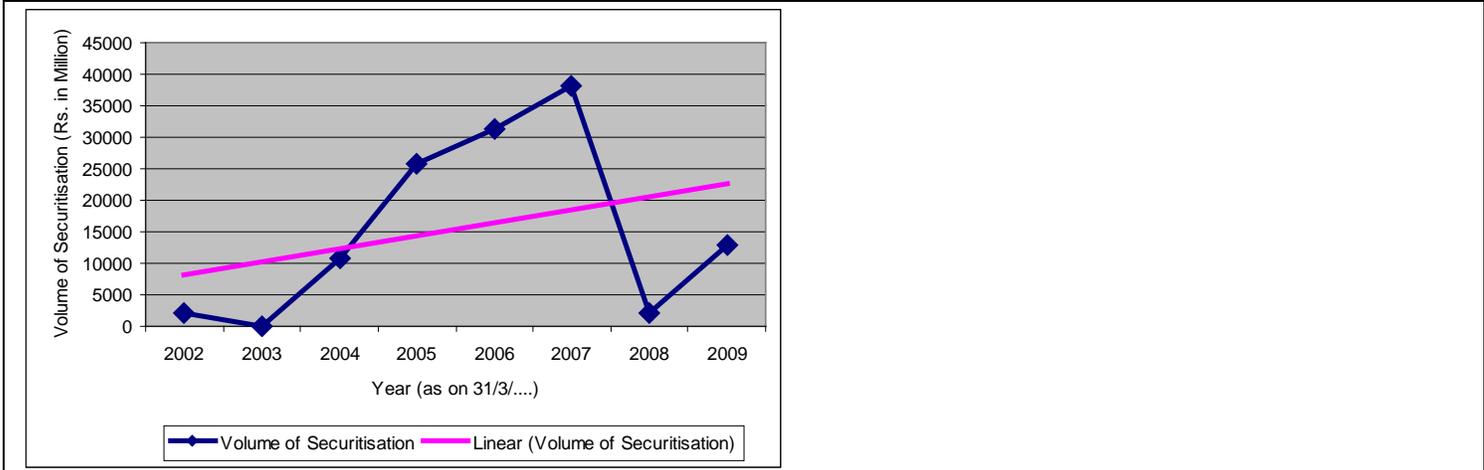
In the similar way the two selected parameter and the securitisation volume have been compared in respect to other sample institutions. The overall results indicate that in respect of 75% of the sample institutions the performance ratios have followed the movement trail of the securitisation volume. The overall analysis shows only 75% satisfaction of theory in case of both banks and NBFCs respectively. In other words, introduction of securitisation has showcased a positive effect on the performance parameters in majority of the sample institutions, considering other controlling variables constant.

Hypothesis 2: Securitisation does not improve the asset quality of the banking institutions.

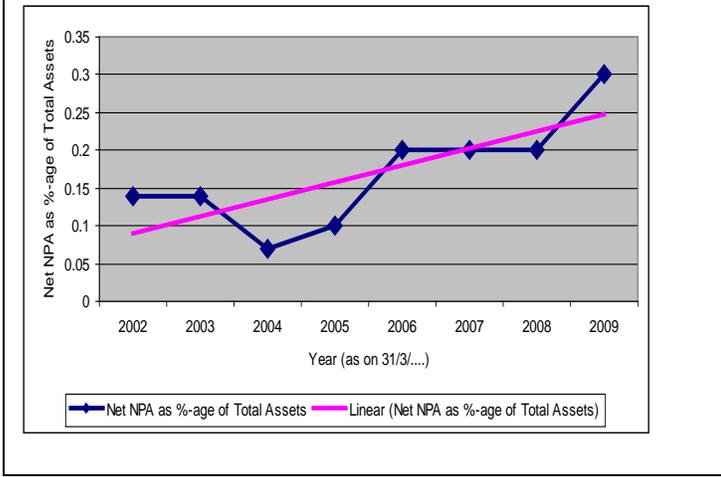
HDFC Bank Ltd.

Figure-3: Line charts (with linear trend) showing Asset Quality Ratios vis-à-vis Securitisation Volume

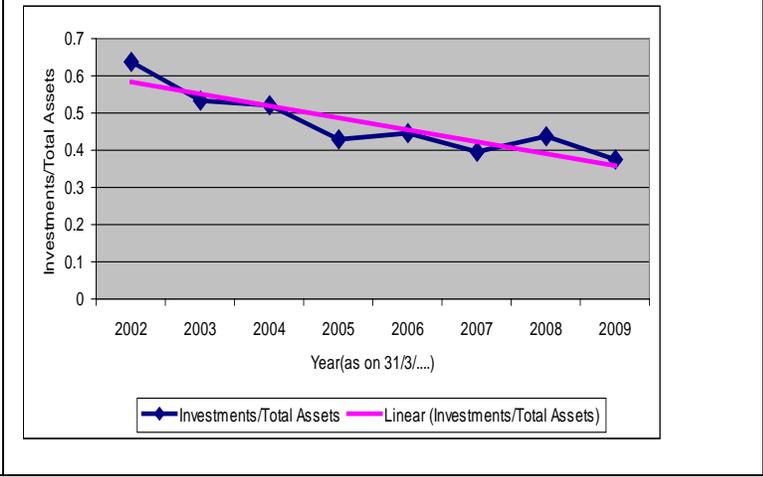
(a) Securitisation Volume



(b) Net NPA as %-age of Total Assets



(c) Investments/Total Assets

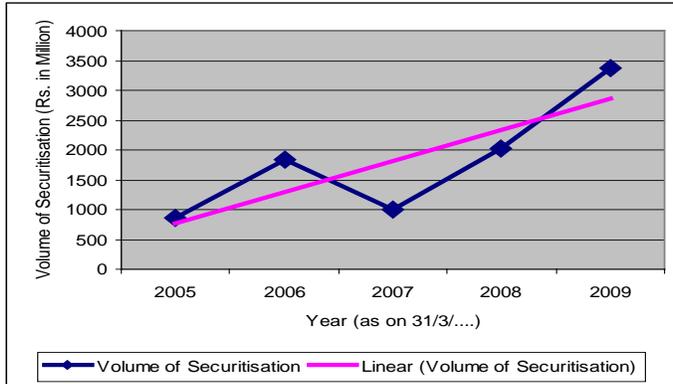


The net NPA as percentage of Total Assets had shown a random trend in *figure-3*. First of all, as the securitisation level increased in 2004 and 2005, the NPA level decreased substantially, though a marginal rise in NPA in 2005 from 2004 was observed. However, again when the bank reduced the rate of securitisation slightly in 2006, the NPA level increased. It remained constant for a few years and then when the securitisation level decreased sharply in 2008, it had its effect on the NPA level as it rose substantially in 2009. The other parameter, investments/total assets decreased over the various years. Thus, it can be stated that securitisation has a favourable impact on the asset quality of HDFC Bank Ltd. as it helped in reducing both the level of NPA and Investments in the entire composition of assets, given that other influencing variables have remained constant.

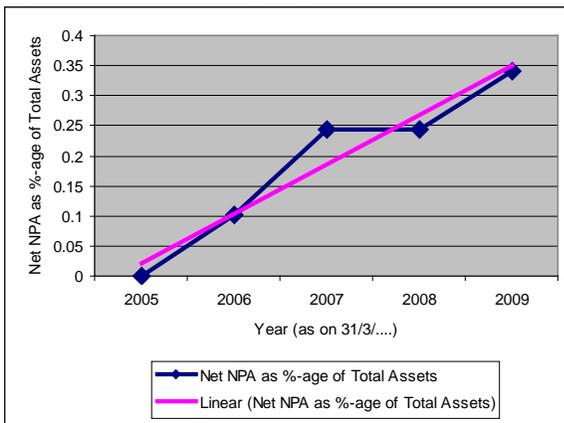
Kotak Mahindra Prime Ltd.

Figure-4: Line charts (with linear trend) showing Asset Quality Ratios vis-à-vis Securitisation Volume

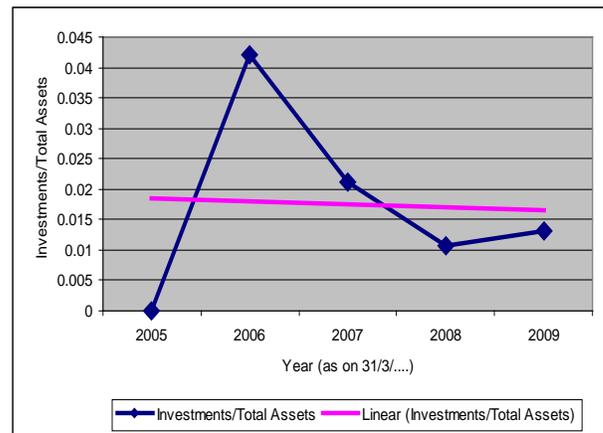
(a) Securitisation Volume



(b) Net NPA as %-age of Total Assets



(c) Investments/Total Assets



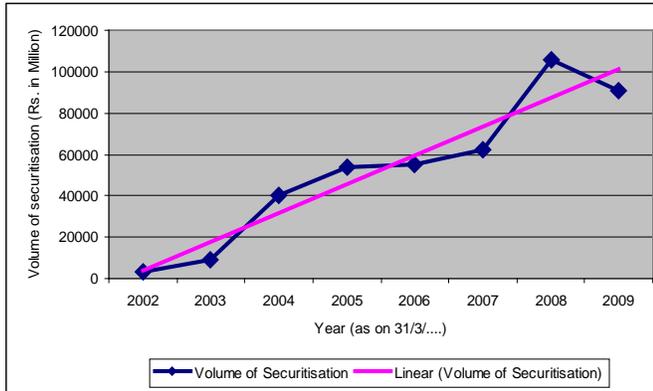
The above figure depicts that NPA percentage is zero in the beginning and then it gradually increased over the various years even though securitisation volume increased during the same period. The investments ratio to total assets however, decreased over the years after 2006. Again in 2009 the ratio increased. When compared with the graphical representation of loans it can be seen that the loans decreased over the various years except in 2009. Thus, though loans have decreased, but at the same time investments have also decreased. Thus, taking into consideration both the parameters, it may be concluded that securitisation in case of this institution has not been able to cast a positive impact on the asset quality. So, this is a case of acceptance of the null hypothesis.

Similarly, the other sample institutions have also been tested in relation to the hypothesis and the selected parameter. An overall analysis of all the other sample institutions indicates that all the institutions have depicted a 91.67% satisfaction with respect to the impact of securitisation volume. Thus, it can be inferred that the more the securitisation, the better is the asset quality of the banks and NBFCs, when all other changing variables are assumed to be constant.

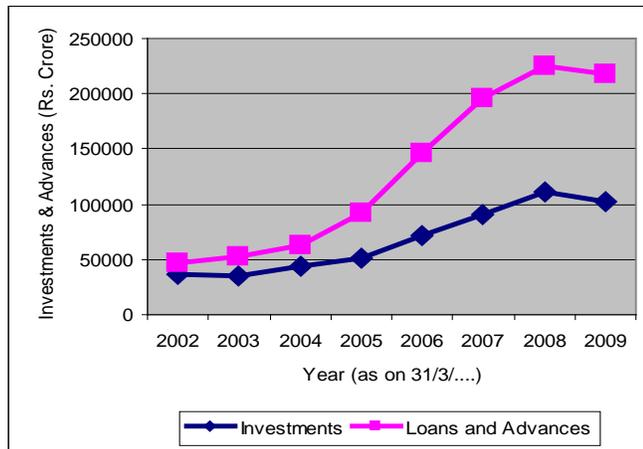
Hypothesis 3: Securitisation does not enhance the institutions' loan portfolios more than their holdings of liquid securities i.e. investments.

ICICI Bank Ltd.

Figure-5: Line charts (with linear trend) showing Investments & Loans vis-à-vis Securitisation Volume
 (a) Securitisation Volume



(b) Investments & Loans

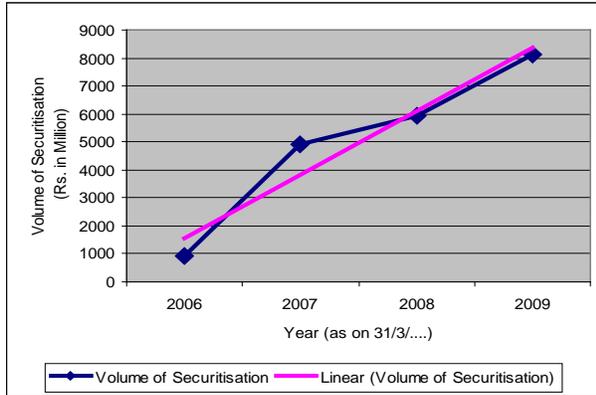


Loans and advances steadily increased at a higher rate than investments with the increase in securitisation volume, with a slight dip in both the parameters in 2009, together with a decrease in securitisation volume.

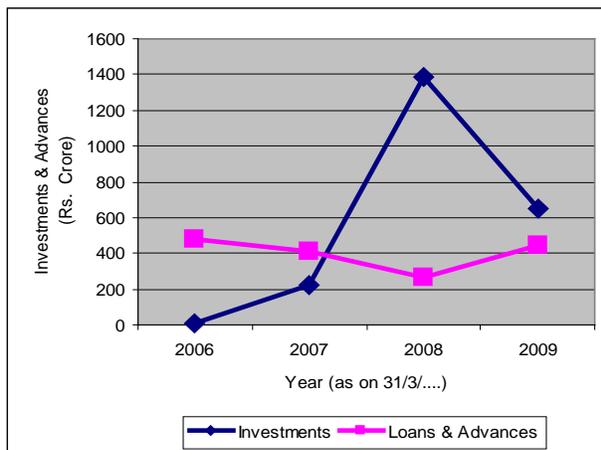
Shriram Transport Finance Co. Ltd.

Figure-6: Line charts (with linear trend) showing Investments & Loans vis-à-vis Securitisation Volume

(a) Securitisation Volume



(b) Investments & Loans



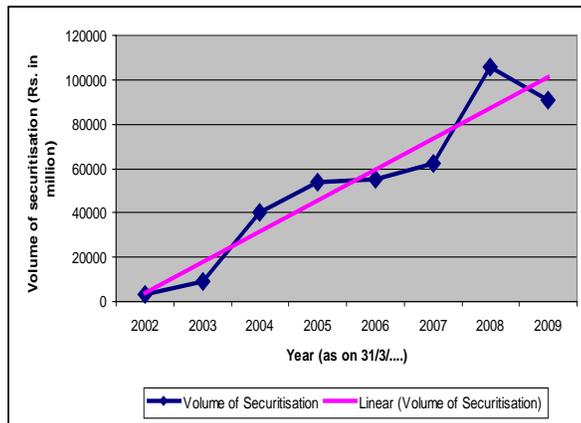
The above figure shows that the loans and advances were higher than investments till 2007, and in the last two years the institution invested more than lent out. In 2007 and 2008 with increase in securitisation volume, loans decreased while investments increased and in 2009 only, investments decreased while loans increased with further increase in securitisation volume, though total amount of investments being still larger than loans. The reason behind increase in investments over loans in the last two years could be the massive downturn in the global financial market which led the institution to invest more in order to maintain a steady performance trend. Thus, the hypothesis in this case is accepted and hence theory gets rejected. Similarly, the results of the other sample institutions indicate that in all the sample institutions, the overall satisfaction index is 91.67%.

Hypothesis 4: Securitisation does not help the institutions in better risk management.

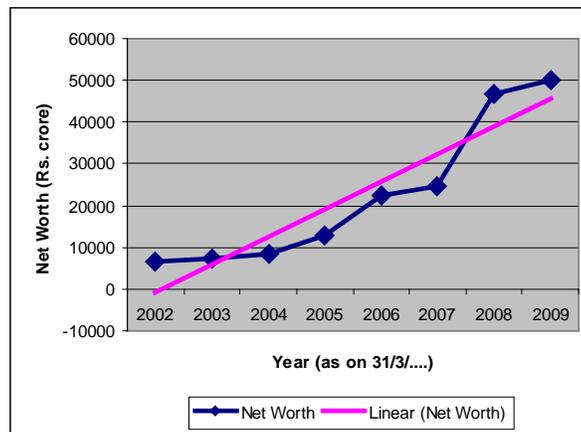
ICICI Bank Ltd.

Figure-7: Line Charts (With Linear Trend) Showing Net Worth vis-à-vis Securitisation Volume

(a) Securitisation Volume



(b) Net Worth

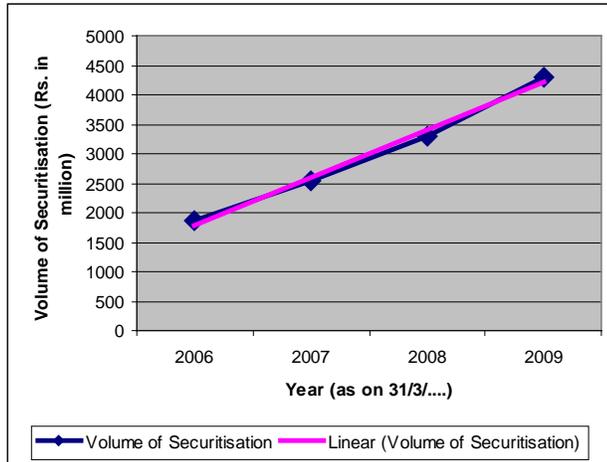


Both securitisation volume and net worth depicted a similar movement over the years thereby indicating that securitisation has helped in better risk management and an improved net worth of the bank.

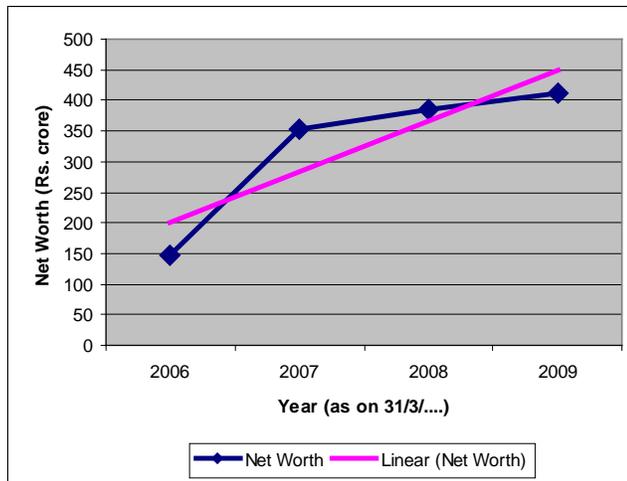
Magma Fincorp Ltd.

Figure-8: Line Charts (With Linear Trend) Showing Net Worth vis-à-vis Securitisation Volume

(a) Securitisation Volume



(b) Net Worth



In this case too, the net worth increased along with increase in securitisation volume over the various years thereby rejecting the null hypothesis. Similarly, the results of the other sample institutions indicate that in all the sample institutions, net worth has increased in response to the securitisation trend and the overall satisfaction index is 100%.

Analysis of Financial Viability of Energy-Efficient CDM Projects in India: A Case Study

Pradipta Banerjee*

Abstract

Realising the detrimental consequences of global warming, the industrialised and developed countries around the globe have come together and committed themselves to reduce the emission of greenhouse gases (GHGs) under an international and legally binding treaty coined as 'Kyoto Protocol' in 2005. The Protocol by setting targets on maximum amount of emission of GHGs by the developed countries (Annex I countries) aims at stabilizing the concentration of GHGs in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

However, to serve the purposes of Annex-I countries in achieving compliance with their quantified emission reduction commitments as well as to encourage the non Annex-I countries with no emission reduction target, to contribute towards emission reduction efforts, the Protocol provides three innovative and flexible mechanisms among which Clean Development Mechanism (CDM) is the most stimulating one and the only mechanism relevant to our country at present. Our country, being a non-Annex-I country to the Protocol has emerged as one of the largest beneficiaries of CDM in terms of generation revenues through sale of carbon credits.

In the present paper a case study of an energy efficiency improvement CDM project has been undertaken which demonstrates that the CDM has given birth of an innovative and profitable business model through which an entity as a meritorious corporate citizen can discharge its responsibility towards the environment and society without jeopardizing its own financial sustainability.

Keywords: *Kyoto Protocol, Baseline study, Monitoring interval, United Nations Framework Convention on Climate Change (UNFCCC), Clean Development Mechanism (CDM), Certified Emission Reductions (CERs), Internal Rate of Return (IRR)*

Introduction

Global warming has come to be recognized as one of the most serious environmental challenges ever to face by human race. The Earth's average surface temperature has increased unusually over the past century due to rapid increase in the concentration of greenhouse gases (most importantly carbon dioxide with others like methane, ozone, nitrous oxide, etc.) in Earth's atmosphere predominantly as a result of rising industrial activity, burning of fossil fuels like coal, gas, oil etc. and tropical deforestation. The scientific opinion on the issue as expressed by the 'United Nations Intergovernmental Panel on Climate Change' (IPCC) is that the global average surface temperature rose by about 0.8 degree Celsius in last hundred years and it will increase by another four degree Celsius by the end of 21st century (Summary for Policymakers, IPCC Synthesis Report, November 2007). The expected detrimental consequences of such changes may include severe droughts, heavy rain cycles, coastal and small island flooding, increases in extreme weather, more and stronger tropical cyclone and hurricanes, melting of ice caps and glaciers, biological extinctions, spread of vector-borne diseases, damage to vegetation and reduction in agricultural yields and many others leading fundamental changes to Earth's climate system.

Acknowledging the issue of climate change as a global threat the countries around the globe met together at the United Nations Conference on Environment & Development (informally known as The 'Earth Summit') in Rio de Janeiro in 1992, resulting in the adoption of the 'United

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Nations Framework Convention on Climate Change' (UNFCCC) with the objective of stabilizing the concentration of six greenhouse gases (namely, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride) in the atmosphere at a level that would prevent dangerous human interference with the climate system. Subsequently, to supplement the Convention, an international and legally binding environmental treaty (originally taken at Kyoto in 1997), coined as 'Kyoto Protocol' came into force on 16th February 2005, which sets limits to the maximum amount of emission of greenhouse gases (GHGs) by the developed countries. At present forty one developed countries have ratified the Protocol and committed themselves to reduce their collective emissions of GHGs by at least 5.2% below their 1990 baseline emission levels over the five-year commitment period of 2008-2012. As per the Protocol, however, the prescribed limit of emission level is not applicable to developing and least-developed countries at present, though they emit GHGs in the atmosphere.

Kyoto Protocol and its Mechanisms

The signatories to the UNFCCC are divided into two main groups: Annex I countries- a total of 41 industrialized and developed countries and Non-Annex I countries- all other countries not included in Annex I of UNFCCC, mostly the developing and least developed countries. Under the Kyoto Protocol, countries with binding emission reduction targets (i.e., Annex-I countries) are issued Emission Allowances based on amount of emissions allowed to them. Further, in order to enable the developed countries to meet their emission reduction targets as well as to encourage the private sector and developing countries (Non Annex-I countries) to contribute towards emission reduction efforts, the Protocol provides three innovative and flexible mechanisms – Joint Implementation (JI), International Emission Trading (IET) and Clean Development Mechanism (CDM).

Under Joint Implementation (Article 6), which is a project-based mechanism, a developed country with a relatively high cost of domestic GHG reduction can set up an emission-reduction or emission-removal project in another developed country that has a relatively low cost of GHG reduction. The carbon credits generated by such project, called Emission Reduction Units (ERUs), can be used by the investor developed country to help meet its Kyoto target while the host country benefits from foreign investment and technology transfer.

International Emission Trading (Article 6) is a market-based Kyoto mechanism under which developed countries with quantified emission reduction targets can simply trade in the international carbon credit market. The allowed emissions of developed countries are divided into 'Assigned Amount Units' (AAUs) and the entities of developed countries exceeding their emission limits can buy AAUs from those who have spare AAUs (i.e., whose actual emissions are below their set limits) at the prevailing market prices.

Like Joint Implementation, Clean Development Mechanism (Article 12) is also a project-based mechanism of Kyoto Protocol. Under CDM, a developed country can invest in an emission reduction project or afforestation or reforestation project in a developing country where the cost of GHG reduction is usually much lower and earn carbon credits on the basis of emission reductions by the project which can be used to meet a part of its Kyoto target. Besides, the entities from developing and least developed countries can also set up a GHG reduction project, generate carbon credits and then earn revenues by selling such carbon credits at prevailing

market prices to entities of developed countries having emission reduction targets. The carbon credits so generated and traded under CDM are expressed by the unit 'Certified Emission Reduction' (CER) where one CER is equal to one ton of carbon dioxide equivalent not emitted in the atmosphere (Article 16).

As our country presently belongs to Non-Annex I countries to the Protocol with no emission reduction target, CDM is the only mechanism relevant to our country and India with China and Brazil has emerged as one of the largest beneficiaries of CDM in terms of promoting economic, social and environmental sustainability of the country at large and generating revenues through sale of carbon credits in particular. The Indian CDM sector has been expanding to a variety of sectoral categories like energy efficiency, renewable energy, fuel switching, waste handling and disposal, industrial process etc. and is growing rapidly to become the world leader.

In the present paper, a case study of an energy efficiency improvement project established under the CDM of Kyoto Protocol has been undertaken with the primary objective to analyse its financial viability. As in case of CDM projects revenues streaming from conventional sources of selling products or services are negligible compared to volume of investments, such a project would be commercially viable only when it is able to capitalize successfully the opportunities of CDM in term generation of revenues through sale of carbon credits. The present study analyses how the project generates carbon credits and make itself a profitable business avenue along with methodologies for determining ex-ante and ex-post emission reductions, objective of the project and contribution of the project in promoting sustainable development of the country.

Case Study of Visakhapatnam (India) OSRAM CFL distribution CDM Project:

Name and location of small-scale CDM project activity:

Title of the project is 'Visakhapatnam (India) OSRAM CFL Distribution CDM Project' and the project is located in Visakhapatnam District of the state Andhra Pradesh, India.

Involved Parties and Project Participants:

Host party: India & Project participant: Osram India Pvt. Ltd

Other involved party: Germany & Project participants: Osram GmbH and RWE Power AG

Crediting period: 10 years starting from 12th February, 2009.

Type and Category of the small-scale project activity:

As per UNFCCC categorization the project activity is a Type II: 'Energy efficiency improvement projects' activity as it increases the efficiency of electric lighting in household sector and the project activity belongs to the Category C: 'Demand-side energy efficiency programmes for specific technologies' because it by increasing the efficiency of lighting used in household sector, reduces energy (electricity) demands. Energy efficiency and conservation projects are also treated as eligible CDM projects, as implementation of these projects would also result in considerable energy savings and dislodge CO₂ emissions from grid-connected power plants which otherwise would occur in the absence of such projects. The procedure for establishment, operation and monitoring of this type of project is guided by the Methodology AMS-II.C, Version 9 of the UNFCCC. The project is a small-scale CDM project as the expected energy savings by the project is within the threshold limit for small scale project of 60 gWh per year.

Description of the small-scale project activity:

The project was registered on 12th February, 2009 with the CDM Executive Board of UNFCCC (Reference Number 1754) as a small scale CDM Project under the Clean Development Mechanism of Kyoto Protocol. The project involves the distribution of around 6,50,000 OSRAM Long life (15,000 utilizing hours) and highly energy-efficient (consumes up to 80% less energy compared to traditional incandescent light bulb to produce same level of illumination) Compact Fluorescent Lamps (CFLs) in the district of Visakhapatnam having about 7,50,000 households scattering over an area of 540 sq. km. For the project, CFL components and assembly technology and know-how were imported from Germany to India and the assembly of the components was undertaken in Sonapat factory of OSRAM India Pvt. Ltd. in the state of Haryana. The CFLs were distributed among the members of target group for a minimal price of Rs.15 per CFL i.e., more or less at a price of a traditional incandescent bulb (GLS bulb). The target group of the project comprises of all the households in the district of Visakhapatnam who are registered customers of the 'Andhra Pradesh Eastern Power Distribution Company Limited' (APEPDCL) and have an electricity grid connection. Under the scheme, the households can substitute one GLS bulb of 60 wattage or 100 wattage at the place of maximum usage in their home by one CFL of 15 Wattage or 20 wattage respectively in exchange of Rs.15 and the replaced GLS bulb.

Objective of the Project

The present CDM project is an innovative initiative undertaken by the private entity 'OSRAM India Pvt. Ltd.' to explore the benefits offered by the Kyoto Protocol to Non-annex I Countries like us. The objective of the project activity is to enhance efficient use of electricity in the household sector of the project area by making CFLs available at prices comparable to that of GLSs and to leverage the high cost of the CFLs through sale of carbon credits (i.e., CERs) generated out of the project. As emission factor for generation of electricity in India is relatively high (as per the latest data published by Central Electricity Authority, India in March, 2011, it is 0.89 i.e., 0.89 ton carbon dioxide (CO₂) is released per mWh of electricity generated in India), the project by reducing consumption of fossil fuel-fired electricity of the Southern Power Grid (which supplies electricity to the project households) considerably reduces emission of GHGs in the grid and on the basis of such emission reductions earns carbon credits which can be sold in international carbon credit market at the prevailing market prices.

Contribution of the project to the sustainable development of the host country:

Like any other CDM projects, the present project also contributes towards promoting sustainable development of the host country in the following way:

- by considerably reducing consumption of electricity (up to 80%), abates CO₂ emissions from the coal-based Southern Power Grid of the country.
- reduces energy demands, most importantly peak demand in a country which faces considerable power outages.
- contributes towards significantly reducing household expenditure on electricity bills and providing access to energy efficient lighting, especially to low-income and rural households. Assuming daily utilization hours of 5 hours and electricity charges @ 4 INR/kWh, a household by replacing one 100 Watt incandescent bulb with one 20 Watt CFL, can reduce electricity bill of (80W x 5 Hours/Day x 365 Days x 4 INR=) 584 INR per year.
- creates employment in CFL manufacturing (assembly) sites as well as in a variety of other jobs associated with project implementation and monitoring activities.

- enables longer evening hours in households (especially in rural areas) allowing for increased social, domestic and educational activities and improves living environment of all, especially of women and children.
- reduces the mercury content in CFLs used in India. The project CFLs have a mercury content of only 2.5 mg. per CFL which is significantly lower than the mercury content in CFLs produced by other manufacturers in our country.
- ensures efficient utilization of natural resources.
- helps to promote technological self reliance in India.

Besides, in the absence of any approved guidelines for disposal of or recycling the used CFLs in our country, the fused CFLs are disposed with the regular waste in landfills. But as its mercury contents may eventually add to contamination of soils and groundwater resources, OSRAM India has addressed the issue proactively and implemented a mitigation plan that would contribute to the prevention of mercury pollution in India.

Methodologies for estimating emission reductions by the project activity:

To be eligible for a CDM project, a project must have the criterion of additionality which means the emission reductions from a CDM project should be additional to that would otherwise occur in the absence of such project and this additionality provides the basis for calculating emission reductions by a CDM project. For the purposes of CDM, emission reductions from a project activity are determined by deducting actual project emission from the counterfactual baseline emission level (i.e., the emission that would occur in the absence of the project).

In order to have an estimate of the number and types of GLS bulbs that could be replaced under the project, OSRAM India Pvt. Ltd. conducted a pre-study by randomly selecting 200 households from the project area in a way that represents all the project participants. The pre-study results revealed that one CFL per household could be installed in 72% of the households in the district and the rest would be ineligible to participate in the project for the reason of either not having eligible GLS bulb to be replaced, absence during conducting the pre-study, unwillingness to participate in the project etc. and out of the total replaceable GLS bulbs 89% would be of 60 Watt and remaining 11% of 100 Watt. For the baseline study, meter equipments were installed in the places where GLS bulbs were in use in the sample households to monitor the daily operating hours of each GLS bulb for 90 days. With the wattage per GLS bulb in the sample and the daily operating hours during the baseline period, the overall power consumption of those GLS bulbs during the baseline period was calculated to find out 'Baseline energy consumption'. These pre-study results and official data regarding average daily operating hours of GLS bulbs and CFL in India (as per data published by 'The Energy & Resource Institute', it was 5 hours per day in 2008.) were used in ex-anti emission reduction calculation of the project.

Following Methodology AMS-II.C formulated by the Executive Board of UNFCCC, the emission reduction from the project in a monitoring/crediting period is calculated as:

$$ER_v = (E_{BL,v} - E_{PJ,v}) * EF - LE_v$$

Where:

ER_v stands for emission reductions during the monitoring period v ,

$E_{BL,v}$ stands for baseline energy consumption (electricity) for the monitoring period v ,

$E_{PJ,v}$ stands for project energy consumption (electricity) for the monitoring period,
 EF CO₂ emission factor for generation of electricity in the power grid serving the project households (measured in kg CO_{2e}/kWh) and remains fixed for the entire crediting period, and
 LE_v Leakage emissions for monitoring period v.

The CO₂ emission factor measures the average amount of CO₂ equivalent (in kg.) emission for generating one kWh of electricity and it varies from country to country as well as from power plant to power plant within the country depending on fuel type and technology used in generating electricity. The CO₂ grid emission factor used in calculating emission reductions is the latest ex-ante grid emission factor value published by the respective governmental authority of the host country available at the time of registration of the project. In case of the present project, the factor used is the CO₂ emission factor (combined margin including imports) of Southern Power Grid, published by the 'Central Electricity Authority', India in 2008.

For the project, 'leakage emissions' represents the emissions resulting from potential usage of replaced GLS bulbs somewhere else. For the project, as all the collected replaced GLS bulbs were destroyed under supervision of an independent body, no leakage emission is occurred.

Thus, estimating emission reductions by the project involves mainly determination of baseline energy consumption (EB) and project energy consumption (EP) as under:

$$EB = \sum_{i=1}^2 (n_i * p_i * o) \quad \text{and} \quad EP = \sum_{k=1}^2 (n_k * p_k * o)$$

Where:

n_i is the number of incandescent bulbs of type i (i.e., 100 W or 60 W),
 p_i is power rating of the incandescent bulb of type i ,
 n_k is the number of CFLs of type k (i.e., 20 W or 15 W),
 p_k is power rating of the CFL of typ k , and
 o is the average operating hours of the devices for the particular period.

But, for practical purposes, baseline and project energy consumption are measured by constructing sample groups of reasonable sizes and then making statistical estimations of the population parameters based on those sample values. Following methodology AMS-II.C, the baseline and project energy consumptions are calculated in a realistic and precise manner as follows :

A: Baseline energy (electricity) consumption:

The baseline energy consumption of the project (EB) is calculated as:

$$E_{BL,v} = CF_v * \sum_{i=1}^n [p_i * \mu_{BL} * d_{k,v}] \quad (A1)$$

Where:

$E_{BL,v}$ is the baseline energy consumption (electricity) in monitoring interval v,
 CF_v is the correction factor for non-functional CFLs found during cross-check in the monitoring interval. CF_v represents share of functional CFLs in the monitoring interval v
 p_i is the power rating of the GLS bulb i used before replacement,
 μ_{BL} is the average baseline operating hours per day, and

$d_{k,v}$ is the days of operation of each distributed CFL k in monitoring interval v .

The CF_v used in equation (A1) above is defined as:

$$CF_v = 1 - \left\{ p_{cc,v} + z * \sqrt{\frac{p_{cc,v} * (1 - p_{cc,v})}{n_{all,v}}} \right\} \quad (A2)$$

Where:

- $p_{cc,v}$ is the share of CFLs that found non- functional during cross check in the monitoring interval v ,
- $n_{all,v}$ is the number of checked CFLs during cross check in monitoring interval v , and
- z is the standard normal for a confidence level 95% ($z=1.96$).

The μ_{BL} used in equation (A1) above is calculated as:

$$\mu_{BL} = \frac{\sum_{d=1}^n \mu_{BL,d,adj}}{Days_v} \quad (A3)$$

Where:

- $\mu_{BL,d,adj}$ is the mean operating hours for day d in the baseline study interval adjusted by confidence interval and
- $Days_v$ is the duration (in days) of the baseline study interval.

$\mu_{BL,d,adj}$ used in equation (A3) is calculated as:

$$\mu_{BL,d,adj} = \mu_{BL,d} - z * \frac{\sigma_{BL,d}}{\sqrt{n_{r,d}}} \quad (A4)$$

Where:

- $\mu_{BL,d}$ is the mean operating hours for day d in the baseline study interval adjusted for daylight hours of different months in the year,
- z is the standard normal for a confidence level 95% ($z=1.96$),
- $\sigma_{BL,d}$ is the standard deviation of operating hours (adjusted for daylight hours of different months in the year) for day d in the baseline study interval, and
- $n_{r,d}$ is the number of meters r that provide a valid value for day d in the baseline study interval.

$\mu_{BL,d}$ and $\sigma_{BL,d}$ used in equation (A4) are calculated as:

$$\mu_{BL,d} = \frac{\sum_{r=1}^n \frac{O_{rd}}{n_{r,d}}}{n_{r,d}} \quad (A5); \text{ and} \quad \sigma_{BL,d} = \sqrt{\frac{\sum_{r=1}^n \left(\frac{O_{rd}}{n_{r,d}} - \mu_{BL,d} \right)^2}{n_{r,d} - 1}} \quad (A6)$$

Where:

- $O_{r,d}$ is the operating hours from meter r which provides valid data for day d in the baseline study interval,
- α_d is the adjustment factor for daylight hours of day d , derived from mean daylight hours of a month (in which day d falls) compared to weighted annual average of daylight hours (Table-1), and
- $n_{r,d}$ is the number of meters r that provide a valid value for day d in the baseline study interval.

Table- 1: Adjustment factors for operating hours measured during the baseline study interval

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.
α_d	0.937	0.921	0.901	0.896	0.871	1.026	1.133	1.153	1.167	1.072	0.983	0.940	1.000

B: Project energy (electricity) consumption:

In similar fashion, the energy (electricity) consumption in the project activity in a monitoring interval is determined using the following formula:

$$E_{PJ,v} = CF_v * \sum_{k=1}^n [p_k * \mu_{PJ,v} * d_{k,v}] \tag{B1}$$

Where:

- $E_{PJ,v}$ is the energy consumption (electricity) in the project activity in monitoring interval v ,
- CF_v is the correction factor for non-functional CFLs found during cross-check in the monitoring interval. CF_v represents share of functional CFLs in the monitoring interval v
- p_k is the power rating of the distributed CFL k ,
- $\mu_{PJ,v}$ is the average operating hours per day in monitoring interval v , and
- $d_{k,v}$ is the days of operation of each distributed CFL k in monitoring interval v .

The calculation for CF_v has been shown in baseline energy consumption above (Equation A2).

The $\mu_{PJ,v}$ used in equation (B1) above is calculated as:

$$\mu_{PJ,v} = \frac{\sum_{i=1}^n \mu_{PJ,v,d,adj}}{Days_v} \tag{B2}$$

Where:

- $\mu_{PJ,v,d,adj}$ is the mean operating hours for day d in the monitoring interval v , adjusted by confidence interval, and
- $Days_v$ is the duration (in days) of the monitoring interval v .

$\mu_{PJ,v,d,adj}$ used in equation (B2) is calculated as:

$$\mu_{PJ,v,d,adj} = \mu_{PJ,v,d} + z * \frac{\sigma_{PJ,v,d}}{\sqrt{nm_{v,d}}} \tag{B3}$$

Where:

- $\mu_{PJ,v,d}$ is the mean operating hours for day d during the monitoring interval v ,

z is the standard normal for a confidence level 95% ($z=1.96$),
 $\sigma_{PJ,v,d}$ is the standard deviation of operating hours for day d during the monitoring interval v , and
 $n_{m,v,d}$ is the number of meters m that provide a valid value for day d in the monitoring interval v

$\mu_{PJ,v,d}$ and $\sigma_{PJ,v,d}$ used in equation (B3) are calculated as:

$$\mu_{PJ,v,d} = \frac{\sum_{m=1}^n O_{m,v,d}}{n_{m,v,d}} \quad (\text{B4}); \text{ and} \quad \sigma_{PJ,v,d} = \sqrt{\frac{\sum_{m=1}^n (O_{m,v,d} - \mu_{PJ,v,d})^2}{n_{m,v,d} - 1}} \quad (\text{B5})$$

Where:

$O_{m,v,d}$ is the operating hours from meter m which provides valid data for day d in the monitoring interval v , and

$n_{m,v,d}$ is the number of meters m that provide a valid data for day d in the monitoring interval v .

As evident from equations A4 and B3, the population operating hours of lamps both in baseline study and monitoring period, have been estimated statistically from operating hours of respective sample groups assuming operating hours of lamps in the population follows normal distribution. It is to notice that while making such estimations, for a conservative and also realistic approach, the baseline operating hours has been decreased and the project operating hours has been increased by the interval value.

Analysis of financial viability of the project:

The purpose of CDM, as stated in Article 12, Paragraph 2 of the Kyoto Protocol, is to assist non-Annex I countries and entities from those countries in achieving sustainable development and to assist Annex I countries and entities from those countries in complying with their quantified emission limitation and reduction commitments under Article 3. This means that besides setting limits on maximum amount of emission of GHGs by the developed countries, it aims to incentivize the companies or countries that emit less carbon vis-à-vis helps to ensure efficient use of the environment and its protection to a great extent.

It is most likely that a business entity would like to set up a CDM project only if the project is financially viable irrespective of extent of its contribution to sustainable development. Acknowledging the reality, the Kyoto Protocol assigned a monetary value to the cost of polluting atmosphere. This means that carbon emission becomes an input cost to those business entities that pollute much and at the same time an important source of revenue to those who pollute less. India, being a non-Annex-I country to the Kyoto Protocol, has emerged as one of the largest beneficiaries of CDM with a great potential and opportunity for government, investors and business enterprises. Osram India, one of the world's leading lighting manufacturers, has undertaken the present project not only as a part of its contribution towards society and environment but also as a profitable and attractive business model.

The expected volume of CERs, commonly termed as carbon credits that would be generated by the project over the crediting period as envisaged in the Project Design Document (PDD) of the project are presented in Table-2. The main cost associated with the project is the fully absorbed cost of CFLs (including duties, taxes, assembly cost in India etc.) distributed under the project

and it was comparatively higher than similar types of CFLs produced in India for its high quality (around 4 to 4.5 Euro). Other project costs include overhead charges of OSRAM India Pvt. Ltd., freight and cost of distribution of the CFLs in the project area (ranges between 0.30 Euro to 0.80 Euro per CFL). On the other hand, revenues of the project stream from token selling price of CFLs (which is 15 INR or around .26 Euro per CFL) and sales of CERs generated by the project. The costs and revenues of the projects as well as the numbers of CFLs that would be replaced under the project have been estimated in a very conservative manner for analyzing financial viability of the project.

Table-3 presents anticipated costs and revenues (without considering revenues from CERs) of the project for different years within the crediting period. It is evident from Table-3 that without income from sale of CERs, the project can not be viable as the Net Present Value (NPV) of the project even at a discount rate 0% is negative (1.37 Million Euros). But when we consider CER revenues assuming a CER price of 10 Euros/CER (in a very conservative approach, the CER price of 10 Euros/CER has been taken for estimating CER revenues as the CER prices varied between 11.50 to 18 Euros in the period prior to implementing the project), the NPV of the project becomes positive and the project fetches an Internal Rate of Return (IRR) of 22.66% (Table-4). Thus, the project can financially be viable and attractive only with CER revenues, the main source of revenue for any CDM project.

Further, we have performed sensitivity analysis to judge the financial viability of the project under unfavourable situations by decreasing revenues from CERs by 10% (as revenue from sale of CFL is prefixed) and also increasing costs by 10%. It is seen from Table-5 that when revenue from CERs is reduced by 10% for each year within the crediting period keeping all other figures unchanged, the project still yields an attractive IRR of 18.17%. Likewise, an IRR of 18.27% is generated by the project when the costs associated with the project are increased by 10%, keeping all other figures unaltered (Table-6). The project can also bring a healthy IRR of 14.25% even when both revenue is decreased and cost is increased by 10% i.e., under most unfavourable situation of increased cost and decreased revenue (Table-7).

Again, emission reductions achieved by a CDM project in a monitoring period (normally a year) are monitored and verified by an independent body 'Designated Operational Entity' (DOE) appointed by the CDM Executive Board. On the basis of the verification report submitted by the DOE to the CDM Executive Board, the Board issues CERs to the project. But, it has been experienced from other CDM projects in India and also from the first monitoring period of the present project that after actual emission reductions achieved by the project in a monitoring interval, considerable time of nearly a year is required to validate such reductions by DOE and subsequent issue of CERs by the CDM Executive Board. This means that the CERs revenues pertaining to a particular year within the crediting period are actually recognized and received in the next year resulting an upward bias in calculating NPV and IRR of the project. To consider the issue, IRR of the project has been recalculated assuming a time lag of one year between actual emission reductions by the project and subsequent verification and issue of CERs (Table-8). From Table-8 it is evident that the project deserves financial acceptability yielding an IRR of 16.38% even when the delay in receiving the CER revenues is considered.

Thus, the present energy efficient lighting CDM project is nothing but a business project undertaken by Osram India Pvt. Ltd. in the state of Andhra Pradesh. But, its uniqueness lies on the way by which it generates revenues to make the project commercially rewarding vis-à-vis contributes towards the environment and the society in general and conservation of electricity in particular.

It is worthwhile to mention here that till the end of the year 2011, 26,532 CERs have been issued by the CDM Executive Board to the project for the actual emission reductions achieved by the project during the first monitoring interval Feb. 2009 to Mar. 2010. Again, as per monitoring report, the project has achieved an emission reductions of 45,954 tCO₂ (meaning 45,954 CERs) during the second monitoring interval of Apr. 2010 to Aug. 2011, though that has to be verified by DOE. Thus, though the project could not able to achieve planned emission reductions during the first monitoring interval mainly due to unexpected early failure of the project CFLs, it successfully achieved the target in the next monitoring interval resulting achieving average annual emission reductions in line with what was anticipated in registered PDD.

Conclusion:

Fossil fuels such as coal, gas and oil are extensively used as the primary source of energy in India with more than 65% of the electricity generated in the country comes from burning of fossil fuels at present (2010-11). But, apart from depletion of precious and non-renewable natural resources, it leads to harmful emission of GHGs responsible for global warming. Moreover, in spite of increasing proportion of various non-conventional energy sources, there exists a continuing gap between demand and supply of energy in the country (the energy shortage and peak demand shortage were about 8.8% (55904 million unit) and 10.2% (12151 MW) respectively in the year 2010-11). With significant growth of population (1.34% p.a.), rapid urbanization (2.4% p.a.), very low per capita electricity consumption compared to other developed and emerging countries as well as global average (only 478 kWh compared to 12,365 kWh for USA, 6,788 kWh for Japan, 2572 kWh for China, 1,987 kWh for Brazil etc. and global average of around 2900 mWh), multidimensional developmental approach and rapid stride towards economic self-reliance, the country's appetite for energy is increasing substantially day by day while energy sources are becoming scarce and costlier than before. Thus besides augmenting power generation capacity, conservation of energy through efficient utilization of energy resources has emerged as one of the major issues in recent years. Apart from being environmentally benign, it is the quickest, cheapest and most practical way of bridging or at least narrowing the gap between requirement and availability of energy of the country in short term.

The 'Visakhapatnam (India) OSRAM CFL Distribution CDM Project', a landmark demand side energy efficiency project, by improving energy efficacy contributes toward saving electricity of the country which despite significant growth in generation over the years, has been suffering from considerable energy shortages and supply constraints, ensuring energy security to its population and trimming down CO₂ emission from fossil fuel-based power plant serving the grid. As per an estimate of Bureau of Energy Efficiency (BEE), India, if the present project could be replicated throughout the country with replacing only one incandescent bulb per household by CFL, then it would result in reduction of electricity demand by around 3000 MW (where peak demand shortage of electricity was 12151 MW in 2010-11) with a potential saving of INR

12,000 crores per annum and CO₂ emission by ten million tones from grid-connected power plants.

India, being a non-Annex-I country to the Kyoto Protocol having no emission reduction target at present, has emerged as one of the largest beneficiaries of CDM with a great potential and opportunities for business enterprises, government and investors. The government and private entities of our country can successfully capitalize the benefits and opportunities offered by the CDM in promoting economic growth and well-being of the nation in a sustainable manner vis-à-vis generating revenues through sale of carbon credits. The financial analysis of the present project demonstrates that the government and entrepreneurs from developing and least developed countries can utilize the benefits of CDM to combat challenges faced by global environment in an innovative and profitable way as well as promote social, economic and environmental sustainability in line with national sustainable mission of the country. In fact, CDM has given birth of an emerging and innovative business model through which an entity as a meritorious corporate citizen can discharge its responsibility towards the environment and society without jeopardizing its own financial sustainability. But, as the registration and operation of a CDM project involves a lot of technical and non-technical complexities with substantial investment risk, the government has to play a more proactive role in exploring and capitalizing the benefits of CDM to promote economic growth and well-being of the nation at large and capacity-building at both private and public sector levels, risk management and project financing through banks and financial institutions in particular.

Table- 2: Estimated emission reductions by the project in tones of CO₂e or estimated volume of CERs generated by the project over the crediting period of the project

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total	Avg.
CO ₂ e (in tons) /CFRVolume*	28,664	31,982	31,370	30,694	29,849	28,731	26,893	24,801	22,189	19,102	274,275	27,428

* After deducting the fee levied by the CDM Executive Board for small scale project @ 2% of CERs generated by the project.

Table- 3: Costs and Revenues of the project without CER revenues (in 1,000 €)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
CFL Cost ¹	1,351	0	0	0	0	0	0	0	0	0	1,351
Other Project Costs ²	135	0	0	0	0	0	0	0	0	0	135
Total Cost (A)	1,486	0	1,486								
CFL Sales	116	0	0	0	0	0	0	0	0	0	116
Total Revenue (B)	116	0	116								
Net Revenue (B-A)	-1,370	0	-1,370								

Note1: Fully absorbed cost including freight, duties, taxes etc.

Note2: Such as overhead, distribution cost etc.)

Table- 4: Costs and Revenues of the project at a CER price of 10 €/CER (in 1,000 €)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
CFL Cost	1351	0	0	0	0	0	0	0	0	0	1351
Other Project Costs	135	0	0	0	0	0	0	0	0	0	135
Total Cost (A)	1486	0	1486								
CFL Sales	116	0	0	0	0	0	0	0	0	0	116
CER Revenue	287	320	314	307	298	287	269	248	222	191	2743
Total Revenue (B)	403	320	314	307	298	287	269	248	222	191	2859
Net Revenue (B-A)	-1083	320	314	307	298	287	269	248	222	191	1373

Internal rate of return (IRR) = 22.66%

Table- 5: Costs and Revenues of the project at a CER price of 10 €/CER (in 1,000 €) reducing revenues from CER sale by 10%

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
CFL Cost	1351	0	0	0	0	0	0	0	0	0	1351
Other Project Costs	135	0	0	0	0	0	0	0	0	0	135
Total Cost (A)	1486	0	1486								
CFL Sales	116	0	0	0	0	0	0	0	0	0	116
CER Revenue	258	288	283	276	268	258	242	223	200	172	2468
Total Revenue (B)	374	288	283	276	268	258	242	223	200	172	2584
Net Revenue (B-A)	-1112	288	283	276	268	258	242	223	200	172	1098

Internal rate of return (IRR) 18.17%

Table- 6: Costs and Revenues of the project at a CER price of 10 €/CER (in 1,000 €) increasing cost by 10%

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
CFL Cost	1486	0	0	0	0	0	0	0	0	0	1486
Other Project Costs	149	0	0	0	0	0	0	0	0	0	149
Total Cost (A)	1635	0	1635								
CFL Sales	116	0	0	0	0	0	0	0	0	0	116
CER Revenue	287	320	314	307	298	287	269	248	222	191	2743
Total Revenue (B)	403	320	314	307	298	287	269	248	222	191	2859
Net Revenue (B-A)	-1232	320	314	307	298	287	269	248	222	191	1224
<i>Internal rate of return (IRR) 18.27%</i>											

Table- 7: Costs and Revenues of the project at a CER price of 10 €/CER (in 1,000 €) reducing revenues from CER sale and increasing cost by 10%

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
CFL Cost	1486	0	0	0	0	0	0	0	0	0	1486
Other Project Costs	149	0	0	0	0	0	0	0	0	0	149
Total Cost (A)	1635	0	1635								
CFL Sales	116	0	0	0	0	0	0	0	0	0	116
CER Revenue	258	288	283	276	268	258	242	223	200	172	2468
Total Revenue (B)	374	288	283	276	268	258	242	223	200	172	2584
Net Revenue (B-A)	-1261	288	283	276	268	258	242	223	200	172	949
<i>Internal rate of return (IRR) 14.25%</i>											

Table- 8: Costs and Revenues of the project at a CER price of 10 €/CER (in 1,000 €) and Internal Rate of Return (IRR) generated by the project considering the time gap between generation of CERs and subsequent issue of CERs

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
CFL Cost	1351	0	0	0	0	0	0	0	0	0	0	1351
Other Project Costs	135	0	0	0	0	0	0	0	0	0	0	135
Total Cost (A)	1486	0	1486									
CFL Sales	116	0	0	0	0	0	0	0	0	0	0	116
CER Revenue	0	287	320	314	307	298	287	269	248	222	191	2743
Total Revenue (B)	116	287	320	314	307	298	287	269	248	222	191	2859
Net Revenue (B-A)	-1370	287	320	314	307	298	287	269	248	222	191	1373
<i>Internal rate of return (IRR) 16.38%</i>												

References:

- Bansal, P. and Roth, R. (2000), "Why companies go green: A model of Ecological responsive-ness", *The Academy of Management Journal*, Vol. 43, No. 4, pp. 717-36
- Bhattacharya, C.B., Sen, S. and Korschun, D. (2011), "*Leveraging corporate social responsibility: The stakeholder route to business and social value*", Cambridge University Press, UK
- Central Electricity Authority (2008), "CO₂ Baseline Database for the Indian Power Sector", User Guide, Version 4.0, Ministry of Power, Government of India
- _____ (2010), "Annual Report 2009-10", Ministry of Power, Government of India
- _____ (2011), "Growth of electricity sector in India from 1947-2011", Ministry of Power, Government of India, June
- Chandra, P. (2002), *Projects: Planning, Analysis, Selection, Financing, Implementation and Review*, Tata McGraw-Hill, New Delhi
- _____ (2004), *Financial Management: Theory and Practice*, Tata McGraw-Hill, New Delhi
- Christiana Figueres, C. and Bosi, M. (2006), "Achieving greenhouse gas emission reductions in developing countries through energy efficient lighting projects in the Clean Development Mechanism (CDM)", *The Carbon Finance Unit at the World Bank* (Available at www.carbonfinance.org)
- Fenhann, J. and Hinostroza, M. (2011), *CDM Informations and Guidebook*, UNEP Riso Centre on Energy, Climate and Sustainable Development, Roskilde, Denmark
- Fischer, D.F. and Jordan, R.J. (1995), *Security Analysis and Portfolio Management*, Prentice-Hall of India, New Delhi
- Gujarati, D.N. (2004), *Basic Econometrics*, Tata McGraw-Hill, New Delhi
- Gupta, S.P. (1995), *Statistical Methods*, Sultan Chand & Sons, New Delhi
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2007), *Multivariate Data Analysis*, Pearson Education, New Delhi
- International Energy Agency (2011), "World Energy Outlook 2011", November, Paris
- Kanji, G.K. (1993), *100 Statistical Tests*, Sage Publication, New Delhi
- Kumar, S. (2011), "Efficient lights for Indian homes", *Business Lines*, Sept. 29
- Lutken, S. and Olsen K.H. (Eds.) (2011), *Progressing towards post-2012 carbon markets*, UNEP Riso Centre on Energy, Climate and Sustainable Development, Roskilde, Denmark
- Ministry of Environment and Forests (2009a), "India's GHG emissions profile: Results of five climate modeling studies", Government of India, Sept. 2009
- _____ (2009b), "Climate change negotiations: India's submissions to the United Nations Framework Convention on Climate Change", Government of India, August
- Ministry of External Affairs (2009), "The road to Copenhagen: India's position on climate change issues", Public Diplomacy Division, Government of India, Feb. 27
- Ministry of Power (2011), "Annual Report 2010-2011", Government of India
- Okubo, N. and Pandey, N. (2011), "Linking ground experience with CDM data in the power generation sector in India", *IGES-TERI CDM Reform Paper*, March
- Olsen, K.H. (2007), "The Clean Development Mechanism's contribution to sustainable development: A review of the literature", *Climatic Change*, Vol.84, No.1, pp. 59-73

- Oza, H.S. and Fenhann, J. (2008), “Sustainable development benefits of Clean Development Mechanism projects: A new methodology for sustainability assessment based on text analysis of the project design documents submitted for validation,” *Energy Policy*, Vol. 36, No.8, pp. 2819–2830
- Sharma, S., Bhattacharya, S. and Garg, A. (2006), “Greenhouse gas emissions from India: A perspective”, *Current Science*, Vol. 90, No.3, pp. 326-33
- Shukla, P.R., Sharma, S. and Venkata Ramana, P. (2002), *Climate Change and India: Issues, Concerns and Opportunities*, Tata McGraw Hill, New Delhi
- Shrestha, R.M., Sharma, S., Timilsina, G.R. and Kumar, S. (2005), “*Baseline Methodologies for Clean Development Mechanism Projects: A Guidebook*”, in Lee, M-K. (Ed.), UNEP Riso Centre on Energy, Climate and Sustainable Development, Roskilde, Denmark
- Spash, C.L. (2009), “The brave world of carbon trading”, [Online at <http://mpr.ub.uni-muenchen.de/19114>, cited on Dec.9, 2009]
- Sunbhad, S. (2010), “Crediting on carbon: The carbon market offers a promising future for India”, *Dataquest*, March 31
- Sutter, C. and Parreno, J.C. (2007), “Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects”, *Climatic Change*, Vol. 84, pp. 75–90
- The Energy and Resources Institute (2011), “Annual Report 2010-11”, New Delhi
- The World Bank (2008), “Residential consumption of electricity in India: Documentation of data and methodology”, Background Paper, India- Strategies for low carbon growth, July
- United Nations Framework Convention on Climate Change (UNFCCC) (1997), “*Kyoto Protocol to the United Nations Framework Convention on Climate Change*”, Bonn, Germany
- ————— (2002), “*Understanding Climate change: A beginner’s guide to the UN Framework Convention and its Kyoto Protocol*”, Bonn, Germany, July
- ————— (2007a), “*Uniting on climate: A guide to the climate change convention and the Kyoto Protocol*”, Bonn, Germany
- ————— (2007b), “*The Kyoto Protocol Mechanisms*”, Bonn, Germany
- ————— (2008), “*Kyoto Protocol reference manual on accounting of emissions and assigned amount*”, Bonn, Germany
- ————— (2009), “*Glossary of CDM Terms, Version 05*”, Bonn, Germany
- ————— (2011a), “*CDM Methodology Booklet*”, Bonn, Germany, Nov
- ————— (2011b), “CDM Executive Board Annual Report 2011”, Bonn, Germany
- ————— (2011c), “*Benefits of the Clean Development Mechanism*”, Bonn, Germany

Documents consulted:

- Project Design Document (PDD) of ‘Visakhapatnam (India) OSRAM CFL Distribution CDM Project’ (VIOCDP) submitted for National Approval from National CDM Authority, India and registration with UNFCCC.
- Project Concept Note (PCC) of VIOCDP.
- Monitoring Report of VIOCDP for the period Feb. 2009 – March 2010 (Dt. Dec.15, 2010).
- Monitoring Report of VIOCDP for the period April 2010 – Aug. 2011 (Dt. Sept. 29, 2011).
- Final Verification Report of VIOCDP for the period Feb.2009 – March 2010 (Dt. May 30, 2011).

- Certification Report (No. 8000384154-10/185-C01.2) of VIOCDP for CERs generated by the project for the verification period Feb.2009 – March 2010 (Dt. May 30, 2011).
- Host country approval letter to OSRAM India Pvt.Ltd. by National CDM Authority, Ministry of Environment and Forests, Government of India (Dt. Jan. 22, 2008).

Websites visited:

www.unfccc.int [United Nations Framework Convention on Climate Change (UNFCCC)]

www.cdm.unfccc.int [Clean Development Mechanism (CDM) to UNFCCC]

www.cdmindia.gov.in [National CDM Authority, India]

www.powermin.nic.in [Ministry of Power, Government of India]

www.moef.nic.in [Ministry of Environment and Forests, Govt. of India]

www.beeindia.in [Bureau of Energy Efficiency, Ministry of Power, Government of India]

www.cea.nic.in [Central Electricity Authority, Ministry of Power, Government of India]

www.commin.ic.in [Ministry of Commerce & Industry, Govt. of India]

www.worldbank.org.in [The World Bank]

www.carbonfinance.org [Carbon Finance Unit, The World Bank]

www.teriin.org [The Energy and Resources Institute, New Delhi]

www.worldenergy.org [World Energy Council]

www.iea.org [International Energy Agency]

www.iges.or.jp [Institute for Global Environmental Strategies, Kanagawa, Japan]

Entrepreneurship: An Overview of the Issues and Challenges in the Context of Rural Development in India

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Abstract

In the present liberal scenario, entrepreneurship development in the rural context is a challenge. The present paper is an attempt to understand the issues and challenges for rural entrepreneurship development in India. The analysis is then broadened to understand the various issues like importance of rural entrepreneurship, constraints faced by the rural entrepreneurs and a framework for encouraging rural entrepreneurship. The paper also suggested some measures which may be viewed as challenges for the development of rural entrepreneurship.

In conclusion, the study indicated that monitoring rural development programmes by supplying right information at the right time, providing timely and adequate credit and continuous motivation of the bankers, panchayat union leaders and voluntary service organizations will lead to the development of rural entrepreneurship.

Key Words: *Entrepreneurship, Policy Implications, Rural Enterprise, Micro Credit Schemes*

Introduction

Entrepreneurship can be defined as “the process of creating value by pulling together a unique package of resources to exploit an opportunity” (Stevenson *et al.*, 1985). Entrepreneurship is an important tool through which the quality of life for individuals, families and communities can be improved and thereby it can sustain a healthy economy and environment. Entrepreneurship development in rural areas is a challenge in the present liberal scenario. It requires an environment that largely depends on the policies encouraging rural entrepreneurship. There exists a huge gap between demand and supply, which is to be reduced by the Government as well as by the large and small size entrepreneurs by understanding the needs of the people and customizing the products according to their requirement. Rural entrepreneurship is a new field in the area of entrepreneurship research. It has become one of the supportive factors for rural economic development and agribusiness. In this backdrop, the present paper addresses the issues and challenges for development of entrepreneurship in the context of rural India.

This paper has been structured in the following way:

First, it makes a review of the available literatures relating to entrepreneurship development.

Secondly, it states the importance of rural entrepreneurship.

Thirdly, it deals with the problems faced by the rural entrepreneurs.

Fourthly, it describes the framework for encouraging rural entrepreneurship.

Fifthly, it deals with policy implications that are necessary to create conducive environment for rural entrepreneurship.

Finally, some suggestions are offered which may be viewed as challenges for rural entrepreneurship development.

Review of Past Studies

The available relevant literatures are briefly summarized as follows:

Piore and Sable (1984), in their book, “The Second Industrial Divide”, provided a policy framework for small business development which states that economic development will be more successful if it takes place within a political context, where local communities actively support small-scale enterprises.

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Petrin (1992), in a study observed that to accelerate economic development in rural areas, it is important to build up the critical mass of first generation entrepreneurs.

Keeble *et al.* (1992), in their research work found that SMEs in rural areas in the UK have better performance than that of their urban counterparts in terms of employment growth.

Petrin (1994) in another article concluded that rural development is now being largely linked to entrepreneurship. It acts as a vehicle to improve the quality of life for individuals, families and communities in order to sustain a healthy economy and environment.

Storey (1994) in his study found that policy measures can influence the level of entrepreneurship.

Lyson (1995) indicated the prospects of small-enterprise framework as a possible rural development strategy for the economically disadvantaged communities.

Vaessen and Keeble (1995) revealed that the external environment in the more remote rural areas presents challenges for SMEs, which they need to adapt to if they are to survive and grow.

Smallbone and North (1997) revealed that firms with highest level of innovative behaviour were growing in terms of sales and employment, although the relationship between innovation and growth is an inter-dependent and mutually reinforcing one, rather than a simple cause and effect relationship.

Lu Rongsen (1998) in a study in the area of western Sichuan highlighted the important factors that were responsible for rapid development of enterprises. The factors include local natural resources, development of infrastructure, strong and integrated policy support from Government, well planned marketing strategy and linkage with larger companies and organizations for nationwide marketing and abroad.

Gavian *et al.* (2002), in their study, have suggested that SMEs are traditionally thought of as well poised to respond to the increased demand by creating jobs.

Giannetti and Simonov (2003) found that apart from the role of individual characteristics, access to capital and institutions, social factors may also play in the decision to become an entrepreneur. Social interactions affect the payoffs from a variety of economic decisions.

Sherief, (2005) attempted to understand the determinants of rural entrepreneurship and the environment conducive to its development. The study concluded that to accelerate economic development in rural areas, it is necessary to promote entrepreneurship.

Ramalingam and Gayatri (2009) stated that innovation could be used as a strategic tool for development of entrepreneurship. The study concluded that small innovation in the rural area would definitely catch up the majority of the population, thereby leading to better quality of life of many people in the country.

Ganly, Kate and Mair, Johanna (2009) stated that one way to conceptualize the role of social entrepreneurs in social change processes is to view them as institutional entrepreneurs, i.e., entrepreneurial actors who introduce and push through the alternative conceptions of social, political or cultural order. The study addresses the issues of institutionalized inequality and social exclusion through community development work in eastern India.

Sharma, Swati, Vyas and Divya (2011) indicated that various social, economic, political and ecological problems in rural areas in developing countries like India create challenges in employment, decreasing agricultural production and increasing food shortage. This has resulted a huge impact on the domestic production, employment etc. To a certain extent, these problems can be solved by developing entrepreneurship in rural India.

Mehta, (2011), in his study indicated that many Indian companies including MNC started developing business strategies to tap the untapped rural market in India. The study will be

helpful for the various agencies to formulate plans and policies in order to boost the rural entrepreneurship in India. This may help to make the Indian rural market as a critical force in the global economy.

From the review of literature as mentioned above, we found few studies in the context of rural development in India. Hence, the present study is just another attempt to contribute to the existing literature.

Importance of Rural Entrepreneurship

Entrepreneurship development is essential for the first generation entrepreneurs, particularly in the rural areas. Promotion of rural entrepreneurship is important for generating employment. The importance of rural entrepreneurship is briefly highlighted as follows:

i. Reduction of Poverty and Unemployment:

Through entrepreneurship development programme, unemployed people can opt for self-employment. In this respect, several programmes like National Rural Employment Programme (NREP), Integrated Rural Development Programme (IRDP), etc. are in operation in India to help the potential entrepreneurs.

ii. Balanced Regional Development:

By setting small scale units in remote areas, successful entrepreneurship development programmes can help in achieving balanced regional development.

iii. Harnessing Locally Available Resources:

Entrepreneurship development programme can help in harnessing the locally available resources by training and educating the prospective entrepreneurs.

iv. Prevents Industrial Slums:

Proper entrepreneurship development programmes helps in the reduction of industrial slums by providing various attractive schemes, incentives, subsidies, etc. in the non-industrialized areas.

v Reduces Social Tension:

Entrepreneurship development programmes defuses social tension by providing self – employment careers to the talents of the educated youth.

vi Capital Formation:

Entrepreneurs who supply their own and borrowed funds for setting up enterprises are taken as the organizers of factors of production. This all results in the process of capital formation.

vii Improvement in Per Capita Income:

Entrepreneurs generate more output, employment and wealth by exploiting new opportunities, thereby helping to improve per capita income.

viii Economic Independence:

Entrepreneurs can produce different types of better quality goods and services at competitive prices of imported goods which help in promoting economic independence.

ix. Overall Development:

Efficient and effective use of limited resources by the entrepreneurs leads to overall economic development of an area.

Problems faced by the Rural Entrepreneurs

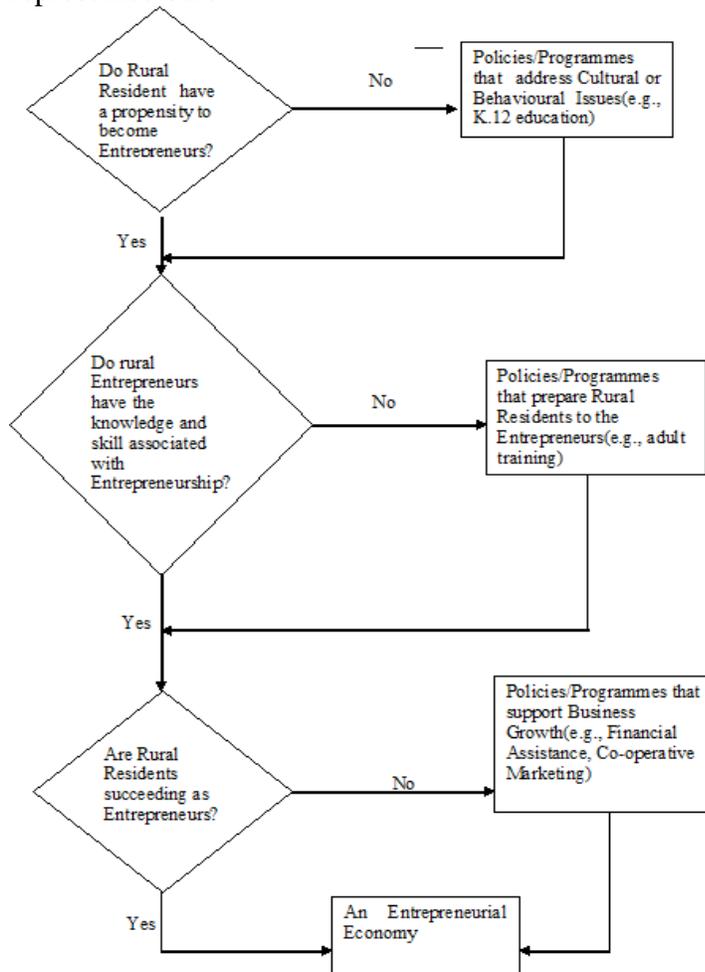
The factors that act as constraints to rural development are identified below:

- Limited scale and scope of local market opportunities.
- Compared to the urban context, there are fewer opportunities for firms to subcontract out locally.
- Limited access to financing, both for start-ups and expanding enterprises.
- Difficulties for women entrepreneurs to get access to support and financial services.

- Low share in the domestic market and almost no share in the external markets.
- Lack of expertise in the area of domestic and external marketing.
- Political and economic instability.
- Excessive regulations and formalities.
- Problems relating to acquisition of inputs.
- Little specialization and training.
- Lack of organization and integration to undertake associative projects.
- Lack of competitiveness of rural firms.
- Poor infrastructural facility and low skill base of many rural areas.
- Lack of knowledge and self-confidence of the rural people due to limited experience and lack of education.

Framework for Encouraging Rural Entrepreneurship

Jay Kayne with Kauffman Foundation provides a general framework for encouraging rural entrepreneurship. The framework provides the critical questions necessary to evaluate the entrepreneurial opportunity in a rural place. The framework suggested by Jay Kayne (2000) is represented below:



Source: Jay Kayne, Kauffman – Centre for Entrepreneurship Leadership, 2000

Policy Implications for Development of Rural Entrepreneurship

The appropriate policy elements for development of rural enterprises are briefly stated as follows:

- Policies should be flexible to facilitate local circumstances.
- The nature of enterprises to be established in rural areas must be conducive to those areas in economic, social and environmental terms.
- Rural enterprise policy should cover all types of rural enterprise.
- There should be consistency and co-ordination with respect to the choice of rural enterprise locations.
- Petrin (1994) advocates the following features for rural entrepreneurship development:
 - i. Sound national economic policy for agriculture, including recognition of the important contribution of entrepreneurship to rural economic development.
 - ii. Policies and special programmes for development and channeling of entrepreneurial talent.
 - iii. Entrepreneurial thinking about rural development by everyone.
- Organization for Economic Co-operation and Development (OECD, 1999) advocates best practices in four broad areas related to SMEs that are suitable for both agro industries and other rural enterprises. They are:
 - i. Efficient and unbiased financial markets.
 - ii. Appropriate business environment.
 - iii. Education, training and capability to compete.
 - iv. Access to information, networking and the global market place.

Suggestions for Development of Rural Entrepreneurship

In spite of the problems faced by the rural entrepreneurs as identified earlier in this paper, the suggestions that are offered which may be viewed as challenges for the development of rural entrepreneurship are stated as follows:

- Various Government programmes like IRDP, TRYSEM, YOAJANA and PMRY etc. are getting due recognition and new thrust areas have been given in policy support of the Government.
- Setting up of ancillary units in rural areas will lead to better productivity of many engineering industries.
- Village resources are abundantly available. Hence, it should be utilized effectively. For example, wind energy can be fully exploited for rural electrification.
- Micro credit schemes have already been initiated in various programmes, like SHGs. This will boost up the economic development and employment generation of the rural poor.
- Past experience and other observations should be considered to develop rural entrepreneurship.
- Market information of different products and innovative technology should be publicly announced in order to get its acceptance among the rural entrepreneurs.
- Essential infrastructure facilities like land, power, raw materials and finance should be provided to the rural entrepreneurs at concessional rates.
- Credit history information of the rural entrepreneurs has to be developed so as to enable them to get sufficient amount of loan from the banks at reasonable rate of interest.
- Strength and weakness of small businessman has to be identified and then they should be properly trained and motivated to become entrepreneurs.

- Innovators club may be established in rural villages to support the large mass of youth who are interested in taking business as a career.
- Marketing management skills should be improved among the rural entrepreneurs to improve their skills and the problem of rural unemployment.
- Management training is to be imparted to create awareness of innovative spirit among the rural entrepreneurs. In this respect, Government is conducting frequent camps in rural areas.
- Awards should be given to those entrepreneurs who demonstrate extraordinary success.
- Finally, entrepreneurship development cell should be established at all village level. Also entrepreneurship guidance and counseling cell need to be there to motivate the entrepreneurs regarding the use of modern technology in each and every sphere of business.

Conclusion

In India, about 75% of the households live in villages. This is estimated to grow in the near future, which makes it a big market in the world. In recent times, more and more entrepreneurs are realizing the potential of rural market and have started focusing on it. Therefore, promotion of rural entrepreneurship is extremely important in the context of producing gainful employment and reducing the widening disparities between the rural and urban population. Rural entrepreneurship is necessary to minimize poverty and to overcome low productivity in the farm sector.

To conclude, monitoring rural development programmes by supplying right information at the right time, providing timely and adequate credit and continuous motivation of bankers, panchayat union leaders and voluntary service organizations will lead to the development of rural entrepreneurship.

References

- Keyne, J. (2000), "Rural Entrepreneurship Initiative", *Kauffman Centre for Entrepreneurial Leadership*, September
- Petrin, T. (1994), "Entrepreneurship as an Economic Force in Rural Development", *Key Note Paper presented at the 7th FAO / REU International Rural Development Summer School*, Herrsching, Germany, 8 – 14 September
- Stevenson, H.H, et al. (1985), "New Business Ventures and the Entrepreneurs", *Homewood, IL: Irwin*
- Organization for Economic Co-operation and Development (1999), "Best Practice Policies for Small and medium-Sized Enterprises", *In ADB / TA 3150-PRC: A study on Ways to Support Poverty Reduction Projects, Final Report*, October
- Sherief, Sultan R. (2005), "Entrepreneurship as an Economic Force in Rural development", *Africa Economic Analysis*
- Ramalingam, C. and Gayatri, R. (2009), "A Framework for Development of Rural Entrepreneurship in Tamilnadu using Innovation as strategic Tool", *Faculty Column Main Page, St. Peter's University, Chennai, India*
- Piore, M.J. and Sabel, C.E. (1984), "The Second Industrial Divide", *New York: Basic Books*
- Petrin, T. (1992), "Partnership and Institution Building as Factors in Rural Development" *Paper presented at the 6th Session of the FAO / ECA Working Party on Women and the Agricultural Family in Rural Development*, Innsbruck, Austria, 13 – 16 October
- Keeble, D. et al. (1992), "Performance of Rural Enterprise", *HMSO, London*

- Sorey, D.J. (1994), “Understanding the Small Business Sector”, *London / Newyork: Routledge*
- Lyson, T.A. (1995), “Down and Out in Rural America: The Status of Blacks and Hispanics in the 1980s”, in *L.J. Beaulieu and D. Mulkey (eds.) “Investing in people: the human capital needs of rural America”*, Boulder, C.O: Westview Press
- Vaessen, P. and Keeble, D. (1995), “Growth-oriented SMEs in Unfavourable Regional Environments”, *Regional Studies*
- Smallbone, D. and North, D. (1997), “Innovation, SMEs and Rural Economic Development: Some Policy Issues”, *Centre for Enterprise and Economic Development Research (CEEDR)*
- Rongsen, L. (1998), “Enterprises in Mountain-specific Products in Western Sichuan, China”, in *ADB / TA 3150-PRC: A Study on Ways to Support Poverty Reduction Projects, Final Report, October*
- Gavian, S. et al. (2002), “The Importance of Agricultural Growth and SME Development to Increase in Rural Employment in Egypt”, *MVE Unit – APRP, Special Study No. 5. Abt Associates Inc.*, Cairo, Egypt, July
- Giannetti, M. Simonov, A. (2003), “Social Interactions and Entrepreneurial Activity”, *Department of Finance and SITE, Stockholm School of Economics, CEPR and ECGI*, Stockholm, Sweden
- Ganly, Kate and Mair, Johanna (2009), “Social Entrepreneurship in India – A Small Step Approach Towards Institutional Change”, *IESE Business School, University of Navarra*, Occasional Paper, OP-169-E, May
- Sharma, Swati and Vyas, Divya (2011), “Entrepreneurship in Rural India – A Need Analysis”, *International Journal of Business Economics and Management Research*, Volume 2, Issue 4, April
- Mehta, A. (2011), “Rural Entrepreneurship – A Conceptual Understanding with Special Reference to Small Business in Rural India”, *Elixir Marketing*, Vol. 36

How Subordinate Staffs Construe Key ‘Complexity Events’ Around a PPP Project Running at Purba Medinipur District of West Bengal? An Interpretative Study

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Abstract

The objective of this paper is to study how subordinate staffs attached to a PPP service delivery project of Government of West Bengal construe project complexity events as a PPP reality unfolds. The study conducted from both government and private ends, suggests that interpretation of key events on project complexity in interactional terms unfold in three stages – blind lane Linking (${}_bL_e$), double way linking (${}_dL_w$) and high way linking (${}_hL_w$). The construed PPP reality and interpretive tasks at each stage as well as, particularly in Indian context, the culturally constructed triggers that impel subordinate staffs to shift from one state to another are described. Finally, in the context of PPP research, some implications are discussed.

Key Words: Complexity events, Indian context, Interpretation, PPP, Subordinate staffs.

Introduction

Public – Private Partnership (PPP) projects are gaining wide popularity in West Bengal for private financing and infrastructure maintenance of computerized service delivery sectors of Government of West Bengal (GOWB). In a fast growing but capital scare economy like West Bengal, PPP is a viable alternative to public funding by harnessing private sector efficiencies which traditionally had been government domain. In these sorts of governance networks, the relationship between public and private employees are ought to be characterized by a high degree of interdependency and complex decision making processes cultivated in fast changing work culture. Therefore, the government organizations which are made attached to PPP projects are confronting a myriad of interactionally complex changing events which they must respond. Traditionally, scholars of PPP literature have viewed organization responses to PPP events as entailing specific managerial or bureaucratic (Boyne *et al*, 2005; Forbes and Laurence, 2005; Hill and Laurence, 2005). However, there is a steady scholastic movement to the analysis of the cognitive side of organizational life which has brought into focus the interpretive processes associated with organizational phenomena (Daft and Weick, 1984; Isabella, 1988). It is surprising that the study of PPP events of this dimension, specifically in the context of indigenous Indian culture, have not invited the attention of contemporary Indian PPP researchers. This has been identified as a ‘research gap’ in the existing PPP literature of India.

Among the most challenging PPP events to which public departments and private organizations must respond are those that become interactional the contexts of project complexity between public and private employees around the incidents of substantial change and adaptation. These interactional events are rarely static. Unfolding over time, these demand continual adjustment and pose for unending challenge for all concerned in government administration and project management. Although many studies have elaborated upon the concrete behaviours and actions connected with these change around project complexity (Klijn and Teisman, 2003), few have tried to cognize the interpretive side of such complexity issues where the process of the social construction of meaning is prioritized rather than the notion of complexity as a final outcome.

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The purpose of this research, therefore, was to investigate the interpretive side of project complexity, evident in the service delivery sectors of GOWB computerized under PPP model.

Interpretation and the Process of Change

A. Organizational Change Research

On organizational change, there had been considerable research on the sequence of activities that facilitates the process of change (Delbecq and Van de Ven, 1971; Sutton, 1987). The literatures on organizational change in general (Van de Ven, 1980) have suggested that a substantial amount of cognition and interpretation accompanies the process of change (Isabella, 1990). In their own words of Quinn and Kimberly (1984):

Transitions are themselves transitional. As they evolve, different emphases on a different combination of values and assumptions may be required. When a change is initiated, existing patterns are disrupted and this results in a period of uncertainty and conflict.

* Emphasis added

In other words, as a change unfolds, different assumptions and orientations are required at different time in the process. The situated actors involved in a change need to undergo an alternation of their cognitive structure. The frame of reference, the perspective through which people view an event that shifts (Isabella, 1990). In the context of PPP events, during the disruption of existing patterns, the exact nature of different and changing PPP actors cognitions and interpretations, however, has yet to be fully explicated in terms of interactional complexity conceptualized otherwise as 'Project – complexity' in this study.

B. Interpretive Literature and Conceptualization of PPP Project Complexity from Process Data

Process research is concerned with understanding how things evolve over time and why they evolve in this way. The process data, therefore, consist largely of stories about what happened and who did, what, when, that is events, activities, and choices over time. Therefore, temporal ordering and probabilistic interaction between entities are important here wherein 'events' have been conceptualized as isolated units of analysis with a particular location of time (Mohr, 1982; Langley, 1999).

In this study, during conceptualization of project complexity in interactional terms which remains operative between the employees of a running PPP project, the authors consciously avoided data analysis that was prematurely influenced by existing theoretical frameworks; rather complexity events had been examined in accordance to the similarities in points of view of the situated actors (Gephart, 1984) or construed realities (Sutton, 1987) that guided the attribution of meaning (Isabella, 1990). In this study, interpretation of complexity events is defined as translating events and developing framework of understanding with due attention to temporal dimension of interpretation (Ranson, *et al.*1980) and cognitive logic (Silverman, 1984). Hence, the strength of this interpretive stream of research from process data had been the articulation of situated actors 'collective view points' on complexity events.

Interpretive Assumptions for this Study

The first assumption is that as because the scope of this study is confined within the framework of organisational routine tasks for supporting a computerized systems installed for providing improved public service and the subordinate staffs are mainly responsible for upkeeping such systems, their collective viewpoints are especially salient because they bear the burden of such routine tasks. Hence, they appear to be at the heart of cognitive shifts around complexity events of routinized task structure of any PPP project.

The second assumption is that organizational members create, or enact, the reality they inhabit (Berger and Luckmann, 1966; Weick, 1979) interpretations of which are made *a posteriori* (Daft and Weick, 1984) i.e. these focus on elapsed action and what has occurred (Bateson, 1972).

The final assumption is that 'frames of reference' that individual members can share exist within a collectivity (Daft and Weick, 1984). Created over via social interchange or negotiated over time (Walsh et al, 1988), this cognitive consensuality (Gioia and Sims, 1986) represents the dominant reality of a group (Pralhad and Bettis, 1986).

Situating on these assumptions, the authors of this study designed an inductive study to explore the following questions:

- a. How do subordinate staffs construe complexity events over time?
- b. How are those viewpoints linked to the process of shifting notions of project complexity?

Methodology

A. Research Strategy

The study reported here was designed to identify the interpretations that subordinate staffs construct to understand key complexity events around a PPP project. The authors selected 18 employees (from both public and private ends) from a public office of GOWB situated in District Purba Medinipur where the PPP project was running to participate in the study. Each employee was asked to describe and discuss five events that had occurred in that office of GOWB over the previous four years. An inductive¹ approach was taken here consistent with the research goals of this study.

B. Sample

The authors randomly selected employees so that the sample would represent varied tenures. The final sample included five private organization employees who had been attached to this project on a contractual basis and remaining thirteen staffs were permanent government employees who had experience of manual performance of tasks but gradually learnt the systems supporting routine works over time. Tenures varied from 3 to 27 years. In addition to this sample size, two stakeholders of this project had been interviewed with the expectation that the information they provided about the complexity events would represent the dominant reality of the hybrid group. The functional areas represented were accounting, data entry and processing, legal services and hardware maintenance.

Selection and Presentation of Complexity Events

This research strategy allowed the subordinate staffs to describe and discuss five specific complexity events as well as any additional events they also cognized as critical. The authors garnered inspiration directly from Schein's (1985) notion that the events are critical when participants themselves perceive them as such. Because these events make a difference in people's thought and action, they are 'key events' in the eyes of situated actors of this PPP project. To determine the key events, the authors of this study asked four employees (two from private end and two from public end) in a pilot interview session to name complexity events of the previous four years that they considered interactionally critical around the overall project functioning. They were : (i) Installation of 'computerized systems support'² the tasks structure on service delivery which was performed previously manually would be henceforth performed via

¹ It can be argued that while the data themselves can yield empirical regularities, abstract conceptualization is required to imagine the 'generative mechanisms' that are driving them. Therefore, any rigid adherence to inductive strategies seems unnecessarily stultifying because understanding comes from a combination of data and abstract conceptualization (Tsoukas, 1989).

² Henceforth will be mentioned as [S-s].

software programming; (2) hybrid hierarchy; (3) interactional confusion over new task structure and staffing pattern; (4) Desk sharing; and (5) hybrid work culture. We represented the same five complexity events to each subordinate staff interviewed during data collection in order to provide a common stimulus around which interpretive comparisons could be made (Pettigrew, 1979). The appendix attached gives the questions used to guide the interviews.

The purpose of the key complexity events interview was to learn as much as possible about subordinate staffs concerns, perceptions, observations and thoughts in connection with the specific key events. A detailed set of open ended questions that the researchers asked the employees to relate what they knew about the event in question, saying 'Tell me about the event of interactional complexity from your point of view tell me what happened before during or after the event occurred'. That shared pattern of specific key event wise recollection of activities and incidents created the 'broadest bracket' (Schutz, 1967) for the event. All the interviews were recorded by 'pencil and paper' technique including the 'transcribed verbatim' so that the raw data could be systematically analyzed.

Qualitative Analysis

The analysis procedure followed in this study had been the Grounded Theory (GT) approach (Glaser and Strauss, 1967), often referred to as the constant comparative method suggesting that similar data are ground and conceptually labelled. Then concepts are categorized. Categories are linked and organized by relationship and finally a theory emerges (Glaser, 1978; Strauss and Corbin, 1998). The analysis is the interplay between the researcher and the data (Strauss and Corbin, 1998). By starting with data from lived experience of the research participants, the researcher can, from the beginning attend to how they construct their worlds. That lived experience shapes the researcher's approach to data collection and analysis (Charmaz, 1994). GT approach requires the researchers to have a creative imagination. In other words, the result of this fluid movement between theory and data is a reconceptualization, often based on a creative leap (Mintzberg, 1979).

During the data collection phase at an organization of GOWB studied here, notes on the facts specific details, and other pieces of information that a number of subordinate staffs seemed to repeat actually augmented the emergence of a theory about the shifting cognitions of PPP project complexity events. In other words, it was appeared that the employees entrusted to upkeep [S-s] in a routine basis viewed complexity events differently at different times. Open coding was considered in the initial phase of analysis. That openness of initial coding helped these authors to think and allow new ideas to emerge. As Charmaz (2006) recommends, the data were broken into segments which are called 'incidents'. An incident is found in a phrase, a sentence or two but infrequently in as many words a paragraph.

Then the incidents were compared with other incidents and other data, to discover or to develop the 'code'. Here coding implied the using of simple, short and active words which reflected these actions. Then the codes were analysed and those relating to a 'common theme' were collected together a lower level of commonality, called 'concepts'. Finally, the concepts were grouped to find a higher level commonality called 'categories'. Table 1 outlines the concepts and categories used to frame coding of the data.

**TABLE 1
DEVELOPMENT OF CODING CATEGORIES**

Categories of lower level commonalities	Examples	Categories of higher level commonalities
------------------------------------------------	-----------------	-------------------------------------------------

Common concerns	Uncertainty about tasks structure Lack of knowledge and skill Inadequate training programmes and absence of motivation system Concern about loss of jobs	Affective randomness
Similar details noted	Traditional administrative superiors are not the only decision makers Older employees were comparatively more resistance – prone to changed working pattern Tasks could not be allotted according to the seniority but to the matching skill for handling (S-s) tools	Border disputes between old and new values. Observation of changing events
Similar perceptions	New furniture arrangements Hybrid staffing and authority pattern paving way for hybrid way of procurement and maintenance of office equipments Speedy and improved service delivery to public Staffs belong to the same generations can share work related emotions and problems In the occasions of ‘common dining’ the negative impacts of dissents appear to be reduced	Accommodating others
Future co- options	Adjusting to new routine work We can't ignore or avoid the PPP – reality revolving around automated systems of service delivery	Learning Improved open ended service standards
Down the memory lane	We miss here warm interpersonal relationships between senior and junior staffs	Recollections of indigenous cultural directives

At the completion of data collection each complexity event description was systematically examined for evidence of data which would fit these categories. The authors of this study reviewed each interview transcript, extracted verbatim sections, recorded them on a separate sheet of paper and coded them into categories. Approximately 90 such excerpts were recorded and 20 box-memos were written. After the completion of coding phases, all interview segments were recorded chronologically creating a progression of data proceeding from before each event through its completion. Table 2 shows flow of responses across each of five events.

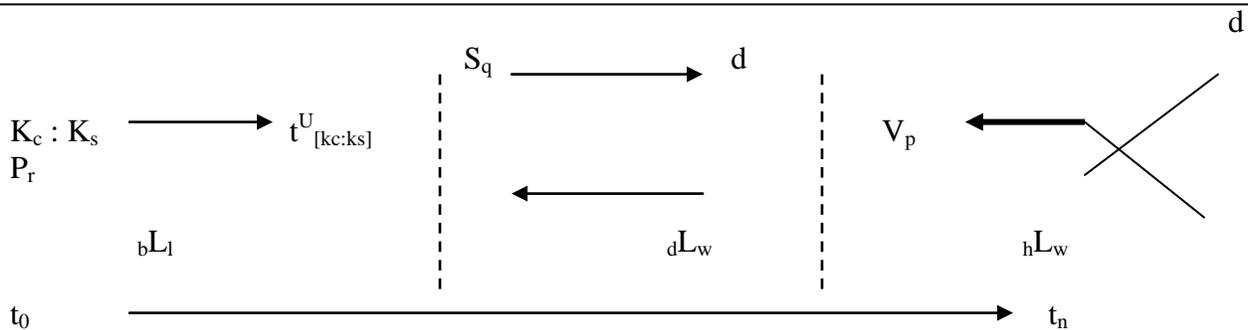
A process database poses considerable challenges. The sheer volume of words to be organised and understood can create a sense of drowning in a shapeless mass of information. The complexity and the ambiguity of the data make it difficult to know where to start

(Langley,1999). In this research, the process database had been dealt with the evolution of relationships between people or with the cognitions and emotions of individuals as they interpreted and reacted to events (Peterson, 1998). Therefore, as Isabella (1990) recommends, the authors examined the coded categories and their relationships with one another for patterns, themes and processes that would account for the frequency, strength, and the presence or absence of any category outlining both the sequence of evolving interpretations and the processes through which those interpretations unfolded.

A. How do Subordinate Staffs construe Key Complexity events Over Time?

The data processing from this research manifested that interpretations of key complexity events evolve through three stages: blind lane linking (bL_l), double way linking (dL_w), and high way linking (hL_w). Though Mandelbaum(1970) remarks in different context that no generalization can be proved, disproved or modified before it is formulated which most intuitively seemed to these authors to be applicable at this stage of research and through there had been us research goal to formulate the process data and / or to venture for ‘excessive truth claim’, for the purpose of better conceptualization a formula – like – figure is presented below:

FIGURE 1
THREE STAGES OF EVOLUTION OF COMPLEXITY EVENTS



K_c = Knowledge of core departmental tasks;
 K_s = Knowledge on [S-s] tasks;
 U = Uncertainty resembling quasi extreme situation of survival;
 T = Time factor;
 S_q = Systems qualifications demanding both K_c and K_s

d = Durability of jobs;
 V_p = Present valuation as [S-s] staffs;
 P_r = Probability of regular contributions of expatriation’s into the architecture of [S-s];

Each stage is characterized by a different construed reality, set of interpretive tasks and frame of reference. During bL_l , no final picture is available to the sub ordinate staffs due to the lack of communications between different critical nodes of organization. During dL_w , due to the fact of an embedded interaction on a regular basis between the critical nodes, some clues on organizational certainties emerge out. During hL_w , different individualized paths are followed to reach the same goal. The following sections discuss each stage in detail.

A (i) Blind Lane Linking

This stage is marked by lack of organizational communications between different critical nodes which are responsible for successful management of the concerned PPP project. Therefore, there is zero level inter organizational interactions between the employees of public and private partners. The subordinate staffs of both ends posses only one type of knowledge; for government

employees is K_c devoid of K_s (See Fig.1) and for private employees that is K_s devoid of K_c . Naturally, the final picture is available to none. As one employee (g-e) said,

One day I went to the Sadar³ office at Tamluk for official purpose. I observed there a huge stock of computer equipments and furniture's had been dumped corner side into the office premises. On enquiry, one replied that these things would be utilized for the computerization of our offices though he had no clear idea about what would be going on there finally. I can remember now, eventually, I came back home with a confused mind (Installation of [S-s])⁴.

This stage is also characterized by a series of disconnected pieces of instructions (U; See Fig.1) from respective higher authorities. As one employee (p-e) said,

We had been verbally instructed to go to the project sites⁵ and to send back configuration – specification numbers of the installed hardwares to H.Q. at Tamluk for the purpose of keeping the records of the same We did not have any complete chart on dos and don'ts (Installation of [S-s]).

There has been lack of reciprocal understanding and mutual perception over other's operation (U; See Fig.1). Actually in a complex project like PPP, extensive cross – functional and cross – organisational interaction is crucial. In the absence of it, there would be a natural tendency for one partner to bypass the organizational communication channels of others. This is a generic problem among hybrids (Borys and Jemison, 1989; Chatterjee, 1991). As one employee (p-e) said,

It was one day, you know, for the purpose of repairing a hardware equipment I was directed by our systems – engineer to move to Tamluk. I worked there hard day long but when returned to this site, one senior staff (g-e) asked me with whose permission I left office? I had an immediate gut feelings to be sandwiched between two bosses (Hybrid hierarchy).

One peculiarity of any PPP project is that it combines resources of both partners and consequently creates a new domain. In the presence of uncertainty and mutual interactions there is ambiguity over proper dividing lines, enhanced by countless rumours and suspicions which may culminate in 'turf protection' (Jennings and Krane, 1994). As two employees (g-e) said,

We were not sure what was going to happen. In addition, there had been a common rumour of losing jobs because we didn't have enough computer literacy. Then what would be our probable tasks structure? We had hard earned knowledge and expertise on our core department task but then, at the initial stage all those seemed to valueless. Moreover, we were on the verge of retirement, so could not motivate ourselves to learn new things (New tasks structure and staffing pattern).

When I sensed that we could not avoid automation I stated, you know de-prioritizing traditional mode of manual handling of routine tasks performances. Rather, I concentrated on bearing desperately software applications. There was none to motivate me. I am largely a self taught (Desk sharing).

The primary interpretive task of subordinate staffs, at this stage, is 'speculation' (t;See.Fig.1). As they try to develop understanding, they must piece together the scattered information into a 'coherent whole' frame of reference. That cognition over the need for piecing together ill fitted information is likely to continue (t;See.Fig.1) until an affordable status of mutual interactions and interdependency is co- created or a new comfortable PPP reality is construed.

TABLE 2

CHRONOLOGICAL ORDER OF COMPLEXITY – EVENTS AROUND PPP PROJECT OF AUTOMATED SERVICE DELIVERY ^a

³ District Head Quarter in traditional Administrative sense.

⁴ Excerpts are followed by the name of event to which they pertain.

⁵ Here 'sites' imply the Government offices where [S-s] had been installed under the PPP project

Installation of [S-s]	Hybrid hierarchy	New task structure and staffing pattern	Desk sharing	Hybrid work culture ^b
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g-e: At the initial stage there were rumours about loss of jobs because we lacked skills and experience for software application.

p-e: We had been provided a short training programme on data entry only but had no idea about core departmental tasks, for that we often committed silly mistakes. They (g-e) also did the same.

(g-e) During the first wave which were rumours later on proved to be wrong. We just kept doing our routine jobs.

p-e: After the initial shock, the office climate started improving now I have us such get feelings as before.

p-e: At the initial stage we had to prove our employee identity by brining consent letter from our project manager

p-e: We were instructed to directly inform our systems engineer whenever there would be any hardware fault detected.

g-e: One day I found a stock shortage of a critical particular consumable required for everyday functional operation. Why did not they (p-e) informed us in advance? Why often they refused to communicate any problem through proper channel of Government administration?

p-e: One day, there had been a serious [S-s] problem at an office situated at the remote corner of this district. They (g-e) helped us a lot to be safe guarded against possible public grievances.

g-e: Previously, tasks were allotted as per seniority. After automation, that picture was made upside down. We did not have enough, computer literacy hence losing prestige and status as senior staffs.

p-e: We were basically [S-s] staffs. At the initial stage they tried to substitute us even though they had no previous experience in handling the systems. I can remember now, though we were contractual staffs we missed cozy touch from their (g-e) senior members.

g-e: Even once that time came when we were not given any scope to operate any automated file. Though, I have sympathy for them because they are the *bhumiputras*^c of this district like us.

p-e: At the initial stage, some superior authorities helped me a lot to learn core departmental tasks.

g-e: There were none to motivate me to learn basics of [S-s]. As a beginner I randomly entered the software files to know operational titbits. I am largely a self taught as a [S-s] staff.

g-e: Even sometimes, I selfimposed sort of pseudo competition with them (p-e) to test my level of expertise in handling [S-s].

p-e: Now we can understand each other better. During common dining or official rituals like farewell of retired government staff, we used to get ourselves together. Then, the conflict level appears to be reduced. Even, sometimes, we shared our workloads.

p-e: We think ourselves as a team because we are basically [S-s] staff appointed on a contractual basis and our (p-e) collective aim is to be perfect and flawless in handling systems.

g-e: We can't ignore the [S-s] for improved service delivery. Besides, when general people comment that due to present style of office decorating and for the cause of computerization, our office get up resembles that of corporate sector, we feel proud.

^a g-e = government employee's ; p-e = private employee.

^b the event was in progress at the time of this research.

^c sons of the soil.

A (ii) Double Way Linking

Following the stage of blind lane linking is double way linking, the interpretational stage during which a complexity event is 'standardized'. Traditional and routine explanation of what a complexity – event will personally mean to situated actors of PPP reality characterize corrective interpretations at this stage which is marked by a vice – versa mechanism between two ends. In other words, presumptions about 'what will be' and 'what has been' are mutually derivable from each other. As one employee (g-e) said,

Gradually I started coming out of my initial gut feeling and started presuming with 'a cool brain that as because I had a longer period that is 18 years of service to be retired and as because I had an expertise on core departmental tasks, if I could learn software application properly, I could be an adept [S-s] staff (Installation of [S-s]).

While blind lane linking stage is marked by 'lack of common history' (Borys and Jemison, 1989), this stage is marked by 'expanding interactional history' based upon the assumption that mutual experience (S_q ; see.Fig.1) will reduce the risks of conflict (d ; see.Fig.1). This is a sort of reflexivity on the part of the subordinate staffs who resort to enacted social activities where by they create and maintain the common place – situations following remembered past of embeddedness. As one employee (p-e) said,

One day a hardware repairing was required at this site. I had been called over phone to attend immediately. But then I was on an official tour to attend another site at the distant corner of this district of Purba Medinipur. I contracted a senior staff (g-e) of this site with whom I reside in the same locality; therefore we have regular social contact in between us. He understood my problem promptly and managed the problem for the time being (hybrid hierarchy).

Individuals react primarily from pre-programmed cognitions representing past occurrences (Taylor and Fiske, 1978). Here, these authors argue that this parallels the notion of embeddedness (Granovetter, 1985). As two employees (p-e) said,

One day there was common dining programme in this office. It was scheduled on a particular day. But I asserted that I couldn't join it for some personal prescheduled assignment. That party was cancelled. I felt at home for that. I sensed consequently that they (g-e) received me as a family member. (New tasks structure and staffing pattern)

Those we are of same generation, now share our work related problems and emotions. Even during heavy workload, they (g-e) share the burden with us (Desk sharing).

Therefore, the primary interpretive task for the subordinate staffs of this stage is 'standardization' and 'script formation' (Gioia and Poole, 1984) based upon the assumption of 'mutual experience' (Rosenberg and Stern, 1971) and 'mutual learning' (Walker, 1972).

A (iii) High Way Linking

The final interpretive stage is high way linking, during which a complexity event around a PPP project is evaluated by the subordinate staffs by the representative of 'stored risk assessment knowledge'. Therefore, this stage is characterized by a combination of different individualized cognition on accessing to the same hybrid PPP resource i.e. reaching a given goal through different paths. There is different entry and departure point. As three employees (g-e) said,

Now we are more experienced and skilled in handling software application. Thus, we have no anxiety on losing jobs because we are permanent employees (installation of [S-s]).

We have sympathy for them (p-e) because they are appointed on a contractual basis (hybrid work culture).

There is a common conjecture that they (p-e) will be fired after the expiration of their contract period. What is the need of it? Their management can set up a central core group at their H.Q. at Tamluk by appointing them there with a store room of hardware equipments so that whenever there would be a requirement of staffing they could be deputed there (hybrid hierarchy).

This stage is characterized by network governance based on social interaction where friction is assumed being a natural part of relationship and where complexity event is intertwined with how informal people relate is relation. As three employees (p-e) said,

We don't know what is going to happen in future. Again, though we do the same routine job on [S-s] with them (g-e), there is discrimination on pay structure (Desk sharing).

General public assume we are the permanent staffs of this office. But this is not case. We are staffs of our project. (Hybrid work culture).

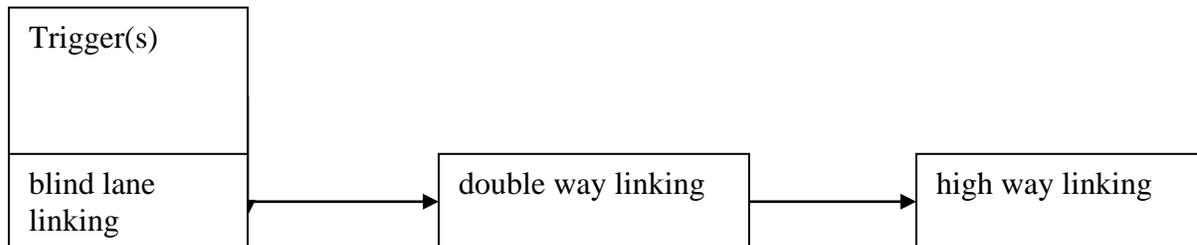
Though now we have friendly relation with them (g-e) our career related problems are different. We remain a team within a team (New tasks structure and staffing pattern).

Thus, the final interpretive task on complexity event is 'risk assessment' where there is no closure to the experience. The construed reality during this stage consisted of continuous evaluation of the positive and negative consequences of some aspects of a PPP – event until more information is forth coming.

B. How are Changing Viewpoints of Subordinate Staffs Linked to the Shifting Notion of Complexity Events Around a PPP Reality?

In addition to three stages in the interpretation of complexity – events, the data from this researcher also manifested the processes that move the situated actors of a particular reality studied here from one interpretive stage to another culturally designed cognitive system, which is typical to Indian world view and which parallels the notion of cognitive consensuality (Gioia and Sims, 1986) identifies a socially constructed crisis endangering the very survival of a group appear to precipitate such shifts. These events are akin to triggering events which activate the negative influence of harmful internal conditions accumulated in the stage of blind – lane – linking (${}_bL_1$). Figure 2 repents the process of shifting from one stage of interpretation to another.

FIGURE 2
PROCESS OF SHIFTING FROM ONE STAGE OF INTERPRETATION TO ANOTHER



Indians are believed to have a cognitive consensuality over strong need for power (nP). Sinha (1982) has traced the backward linkage of such nP in (a) the physical proximity in which Indians live for generations; (b) the pervasive poverty; and (c) the caste system. They feel more comfortable in their primordial groups and social collectives. Due to the fact of restricted spatial mobility they tend to interact continuously and at several levels. The interactions lead to social comparisons of almost everything that personally and socially matters. Hence, one cognizes that resources are always quite limited which is required to be cornered in one's favour. To do so one requires power and to achieve it successful one enacts to cultivate a network of resourceful persons. Thereafter, an enactment of continuous vigilance against any threat to the power is necessary. In addition to this or in congruency to this typical Indian cognition pattern, the caste system provides a perpetual scheme to categorize people into own (*apana*) and others (*paraya*). 'Apana' people are members of primordial groups (*Kauma samaj*) who may be trusted. They constitute the ingroups. The resources acquired outside are given away generously to 'apana' people who, in turn, show dependency on the powerful ingroup members.

It seemed in this research that when a complexity event around hybrid PPP resources which was always sensed as limited by the subordinate staffs had directly affected the 'apana' group interests interpretive shifts gained momentum for the purpose of limiting the damages done. Therefore, the first trigger event begins to move individuals into a state where cultivation of a network of resourceful persons is required. The second trigger event begins to move individuals to maintain a balance of power (Sharma, 2008) with an enactment of vigilance over hybrid PPP resource.

B. (i) Shifting to Double Way Linking

The installation of [S-s] under the scheme of a PPP project signalling that an event will occur triggers the interpretive shift from blind lane linking to double way linking. For example, replacing old and traditional office furniture used for manual performance of tasks altered by new and most sophisticated furniture required for computerization of the work process confirmed that something new was going to be happened. But 'what will this mean to us?' and 'How do we fit in that new organizational reality?' are the affective common reactions fuelling the interpretive shift. As three employees (g-e) said,

We cared a lot that something new was going on there. A brief training programme was held at Tamluk arranged by GOWB but the trainers had been from an organization of Central government (Hybrid hierarchy).

Everyday, after completing our manual performance of traditional pattern of work we used to sit before client computers to practise (Hybrid work culture).

They (p-e) also started coming and practicing the same thing (New tasks structure and staffing pattern).

The typical prevailing office culture and knowledge of core departmental tasks were 'foreign' to the private employees. They had no idea how to link their skill in handling software application to the core departmental tasks. 'Should we know it or not?' and 'To what extent are we to learn it?' are the affective reactions for them. One of them said,

We were given a short training on data entry only by own organization and sent to this site. We had no idea about the ensuing work culture (Hybrid work culture). At the initial stage whenever I was directed to entry some new data and to open an automated file, I used to learn the cause behind this action from them (g-e). (New tasks structure and staffing pattern).

Now, we have gathered some experience over core department knowledge. They (g-e) also have learnt many things of computer applications. The main operating staffs i.e. those we operate everyday the same [S-s] belong to the same generation which facilitates us exchanging our respective expertise (Desk sharing).

Thus, shifting to double way linking confirms the cultivation of a network of subordinate staffs who have computer literacy. In this way a new 'apana' group has been formed.

B. (ii) Shifting to High Way Linking

This final interpretive shift occurs as time wears on and there is some signal that there is an event of continuous interaction on a regular basis. 'what is our present valuation as [S-s] staffs? (V_p ; see Fig.1) or 'will we be provided chance to contribute our expertise in future (P_r ; See. Fig.1)? are the common affective reactions. As two employees (p-e) said,

I am now expert in handling a particular software file. I can do it with a highest possible speed. I know, whenever I take casual leave or remain absent for time being the normal speed of service delivery gets slowing down (Desk sharing).

Still we have to work together for coming few years. There is conflict, misunderstanding with them (g-e) and it will be there. Due to the fact of regular interaction with them now some degrees of interdependency and reciprocity crop up there in between us. We should spit out the gut feelings of previous bitter experiences. Gone are those days. These are of no use new because we also piece together some sorts of expertise on core departmental tasks though if we really be kicked out after the expiration of contract period; all these would be of no use to us (New tasks structure and staffing pattern).

This shifting stage is characterized by subordinate staff's social need to come full circle and to calculate the risk whether the complexity event around newly constituted 'apana' group had

been advantageous or disadvantageous. An enactment of continuous vigilance over hybrid resources produced out of PPP reality is felt utterly required here. As employee (g-e) said, Though I have sympathy for them (p-e) because there are younger than me plus are 'bhumiputras' like us of this district Purba Medinipur, still I think now we are self sufficient in handling efficiency the [S-s]. (Installation of [S-s]).

Implications

Though in fast growing but capital scare economy like West Bengal, PPP is a viable alternative to public funding by inviting private sector investment in service delivery sector of GOWB, very little research has been effectuated so far on project – complexity issues in interactional terms between the subordinate staffs from both public and private ends. This research contributes to the existing PPP literature an understanding of complexity dynamics emphasizing the cognition pattern of the employee engaged in routine jobs for upkeep [S-s]. Therefore, to the best of the knowledge of the authors of this study, it is the first time there is a triangulation on the level of theory between cognition pattern of subordinate staffs on identification of shifting notion of interactional events and project complexity around a PPP reality in Indian context.

This research also indicates that project complexity might alternatively be viewed, not as an obstacle to overcome, but as inherent elements of the cognitive transition evolving over time based on socially constructed organizational events.

The research has also implications for further study for two reasons. First; GOWB has not launched PPPs only at service delivery sectors but also at construction and health sectors. But this study focuses only on service delivery sector's complexity events. Second; this research concentrated on drawing a portrait of subordinate staff interpretation: it is not known whether these stages describe the evolving interpretations of subordinate staffs only because all organizational members including government officers and project managers also enact their PPP realities. Hence, further studies are required to explore these issues.

Conclusions

Like master pieces on organizational sense making theorization (for e.g. Weick, 1979; Daft and Weick, 1984) this research relates the history of views of key complexity – events in one PPP project site. That history was stirred by the shifting notion of complexity which contains the cognitive logic that triggered subordinate staffs' understanding and adjustment during the process of change and predicting the future. As one employee (g-e) said,

No one is self sufficient or could be. Every one needs other to assist or to help during exigency. Previously, we had social contact in between us. Now software does every thing leaving little space for exchanging work related emotions in between us accentuated by the heterogeneity of hierarchy and staffing pattern.

That 'to and fro' motions between past and present provide that sense of history.

Appendix

Interview Questions ^a

Questions were as follows: Tell me about a specific complexity event from your point of view – what happened before, during or after the event occurred?

Before the event –

What it was remember like to be in the office / project site at this time?

Can you any incidents that preceded that specific complexity event? Will you please describe it?

Please tell me a story on what did other staffs around you do then.

What seemed important or significant to you at that time?

Why all these appeared significant to you?

During the occurrence of the event –

When a specific interactional complexity event happened, what do you recall most?

How did you react to it? Did most people react in this way? If not, how they reacted differently and why?

What other interactional events accompanied that specific events?

What concerned you most at that time?

After the event –

After some period has passed, what do you recall most?

What seemed most important to you at that time? Why were these important?

Please tell me a story what concerned you or others at that time?

What did the specific event overall signify? Did it mean some thing?

Did you exchange that overall meaning with staffs around you? Did they express differently? If so, why?

Down the memory lane over your remarks –

Tell me a story if you would like to add anything relevant.

^a The interviews were taken in vernacular Bengali dialect which is the mother tongue of both the present authors and the subordinate staffs studied. Therefore, the researcher carefully translated every thing from Bengali to English during the research stages which was a very difficult task, because it was not easy to find the same meaning to some Bengali words and sentences in English. For example, the dialogue like ‘*ami jani computer mane kom kharcha*’ though apparently implies ‘organizational downsizing by means of budget control’ still carries slightly different perspective in the context of indigenous stock of knowledge through what we learn about the empirical world. These shortcomings were supplemented by additional unstructured interview questions and paying heed to organizational stories they told on complexity events.

References

- Bateson, G.(1972), *Steps to an ecology of mind*, Ballantine, New York
- Berger, P., Luckmann,T.(1966), *The social construction of reality*, Anchor Books, New York
- Borys, B. and Jemison, D.B.(1989), Hybrid Arrangements as strategic Alliances: Theoretical Issues in Organizational Combinations, *Academy of Management Review*, 14(2), pp.234-249
- Boyne, G.A., Meier, K.J., O’Toole, L.J., Jr., Walker, R.M. (2005), Where Next? Research Directions on Organizational performance in Public Organizations, *Journal of Public Administration Research and Theory*, 15(4), pp. 633-639
- Charmaz, K.(1994), Discovering chronic illness : Using grounded theory, In Glaser, B.G. (Ed.) *More grounded theory methodology : A reader*, Sociology Press, Mill Valley, CA, pp. 65-94
- Charmaz, K.(2006), *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*, SAGE publications India. Pvt. Ltd.
- Chatterjee, P.(1991), Structure and sanctions in two service organizations: A case study of interorganizational conflict, *Internal Journal of Group Tensions*, 21(4)
- Daft, R.L. and Weick, K.E. (1984), Toward a model of organizations as interpretations systems, *Academy of Management Review*, 9,pp. 284-295
- Delbecq, A.L. and Van de ven, A.H. (1971), A group process model of problem identification and program planning, *Journal of Applied Behavioral Science*, 7, pp. 466-492

- Forbes, M and Laurence E.L. Jr. (2005), How does Public Management Affect Government performance? Findings from International Research, *Journal of Public Administration Research and Theory*, 15(4), pp. 559-584
- Gephart, R.P., Jr. (1984), Making sense of organizationally based environmental disasters, *Journal of Management*, 10(2), pp. 205-225
- Gioia, D.A. and Poole, P.P. (1984), Scripts in organizational behaviour, *Academy of Management Review*, 9, pp. 449-459
- Gioia, D.A. and Poole, P.P. and Sims, H.P. (1986), Introduction: Social Cognition in organizations. In H.P. Sims and D.A. Gioia (Eds.), *The thinking organization: Dynamics of organizational social cognition*, Jossey – Bass, San Francisco, pp. 1-19
- Glaser, B.G. (1978), *Theoretical sensitivity: Advances in the methodology of grounded theory*, Sociology press, California
- Glaser, B.G. and Strauss, A.L. (1967), *Discovery of grounded theory: Strategies for qualitative research*, Aldine, Chicago
- Granovetter, M.S. (1985), Economic action and social structure: The problem of embeddedness, *American journal of sociology*, 91(3), pp. 481-590
- Hill, C.J. and Laurence, E.L. (2005), Is hierarchical governance in decline? Evidence from empirical research, *Journal of Public Administration Research and theory*, 15(2), pp. 173-195
- Isabella. L.A. (1988), Career stage as a frame of reference for interpreting key organizational events, *Journal of Organizational Behavior*, 9, pp. 345-358
- Isabella. L.A. (1990), Evolving interpretations as change unfolds: How managers construe key organizational events, *Academy of Management Journal*, 33, pp. 7-41
- Jennings, E. and Krane, D. (1994), Coordination and welfare reform: The quest for philosopher's stone, *Public Administration Review*, 54, pp. 341-348
- Klijn, E.H. and Teisman, G.R. (2003), Institutional and strategic barriers to public private partnership: An analysis of Dutch cases, *Public Money and Management*, 23, pp. 137-146
- Langley, A. (1999), Strategies for theorizing from process data, *Academy of Management Review*, 24, pp. 691-710
- Mandelbaum, D.G. (1970), *Society in India*, Vol. 1, University of California Press, Berkeley and Los Angeles, p.8
- Mintzberg, H. (1979), An emerging strategy of 'direct' research, *Administrative Science Quarterly*, 24, 580-589
- Mohr, L. (1982), *Limits and possibilities in theory and research*, Jossey – Bass, San Francisco
- Peterson, M.F.(1998), Embedded organizational events: The units of process in *organizational science*, *Organizational Science*, 9; pp. 16-33
- Pettigrew, A.M. (1979), on studying organizational cultures, *Administrative Science Quarterly*, 24, pp. 570-581
- Prahalad, C.K. and Bettis, R.A. (1986), The dominant logic: A new linkage between diversity and performance, *Strategic Management Journal*, 7, pp. 485-501
- Quinn, R.E. and Kimberly, J.R. (1984), Paradox, planning and perseverance: Guidelines for managerial practice. In J. Kimberley and R. Quinn (Eds.), *New futures: The challenge of managing organizational transitions*, Dow Jones – Irwin, Homewood, pp. 295-314

- Ranson, S., Hinings, B., and Greenwood, R. (1980), the structuring of organizational structures, *Administrative Science Quarterly*, 25, 1-14
- Rosenberg, L.J. and Stern, L.W. (1971), Conflict measurement in the distributional Channel, *Journal of Marketing*, 8, pp. 437-442
- Schein, E. (1985), *Organizational culture and leadership*, Jossey – Bass, San Francisco
- Schutz, A. (1967), *The phenomenology of the social world*, North Western University press Evanston
- Silverman, D. (1970), *The theory of organizations*, Basic Books, New York
- Sinha, J.B.P. (1995), *The cultural context of leadership and power*, Sage, New Delhi
- Strauss, A. and Corbin, J. (1998), *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2 d.ed.), Sage, Newbury Park, CA
- Sharma, G.D. (2008), *Excellence in management*, Rupa and Co, New Delhi
- Sutton, R.L.(1987), The process of organizational death: Disbanding and reconnecting, *Administrative Science Quarterly*, 32, pp. 542-569
- Taylor, S.E. and Fiske, S.T. (1978), Saliency, attention and attribution: Top of the head phenomena. In L. Berkowitz (Ed.), *Advance in experimental psychology*, 11, Academic Press, New York, pp. 249-288
- Tsoukas, H.(1989), The validity of idiographic research explanations, *Academy of Management Review*, 14, pp. 551-561
- Van de Ven, A.H. (1980), Problem solving, planning and innovation: Part I – Tests of the program planning model, *Human Relations*, 33, pp. 711-740
- Walker, O.C. Jr.(1972), The effects of learning on bargaining behavior, *combined proceedings*, American Marketing, F.C. Allvine, Chicago, pp. 194-199
- Walsh, J.P., Henderson, C.M., and Deighton, J.(1988), Negotiated belief structures and decision performance: An empirical investigation, *Organizational Behavior and Human Decision Process*, 42, pp. 194-216
- Weick, K.E.(1979), *The social psychology of organizing* (2d.ed.) Reading, Mass, Addison Wesley

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